

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT
SUPPORT AND GENERAL SUPPORT
MAINTENANCE MANUALPOWER SUPPLY PP-7462/U
(NSN 4940-01-064-7342)

This copy is a reprint which includes current
pages from Change 1.

HEADQUARTERS, DEPARTMENT OF THE ARMY
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WARNING

The ac power sources used with this power supply are dangerous to life. Voltages as high as 490 volts ac may be present. Be very careful when working around the ac source and inside the power supply. Open the circuit breaker or switch before working on the inside of the equipment. Be certain that adequate warnings are posted to prevent accidental turn on of the power supply while it is being worked on.

WARNING

Provide adequate ventilation when using TRICHLOROFLUOROETHANE (Cleaning Compound, Freon, PCA, Type TF). Prolonged breathing of the vapor should be avoided. The solvent should not be used near heat or an open flame; the products of decomposition are toxic and irritating. Since TRICHLOROFLUOROETHANE dissolves natural oils, prolonged contact with the skin should be avoided. When necessary, use gloves that the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

WARNING

CLEANING WITH COMPRESSED AIR

To be usable for cleaning, the compressed air source must limit nozzle pressure to no more than 29 pounds per square inch gauge (PSIG). Goggles must be worn at all times while using compressed air.

WARNING

This equipment weighs in excess of 700 pounds. Do not attempt to lift the power supply without adequate manpower. Use mechanical devices to the greatest extent possible when the equipment must be moved.

CHANGE

No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 18 October 1985

**OPERATOR'S ORGANIZATIONAL, DIRECT SUPPORT
AND GENERAL SUPPORT MAINTENANCE MANUAL
POWER SUPPLY PP-7462/U
(NSN 4940-01-064-7342)
AND
POWER SUPPLY PP-7462A/U
(NSN 4940-01-074-3365)**

TM 11-6125-257-14, 29 November 1979, is changed as follows:

1. Title of manual is changed as shown above. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the identification number.

*Remove pages**Insert pages*

i and ii	i and ii
1-1 through 1-3	1-1 through 1-3/(1-4 blank)
2-3 and 2-4	2-3 and 2-4
3-1 and 3-2	3-1 and 3-2
6-1 and 6-2	6-1 and 6-2
7-5 and 7-6	7-5 and 7-6
7-11 through 7-18	7-11 through 7-18
Figure FO-2	Figure FO-2
A-1	A-1/(A-2 blank)

2. File this sheet in the front of the manual for reference purposes.

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Technical Manual

No. 11-6125-257-14

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 29 November 1979

**OPERATOR'S ORGANIZATIONAL, DIRECT SUPPORT
AND
GENERAL SUPPORT MAINTENANCE MANUAL
POWER SUPPLY PP-7462/U
(NSN 4940-01-064-7342)
AND
POWER SUPPLY PP-7462A/U
(NSN 4940-01-174-3365)**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-ME-MP, Fort Monmouth, New Jersey 07703-5007. In either case, a reply will be furnished direct to you.

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Section I. GENERAL

1-1. Scope

This manual covers Power Supply PP-7462/U and PP-7462A/U (Christie models 1C36-500K24S and 1C36-500KZ234S) (fig. 1-1). It provides instructions for installation, operation, and maintenance for operator, organizational, and general support repair personnel.

1-2. Consolidated Index of Army Publications and Blank Forms

Refer to the latest issue of DA Pam 310-1 to determine whether there are new editions, changes or additional publications pertaining to the equipment.

1-3. Maintenance Forms, Records, and Reports

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750 as contained in Maintenance Management Update.

b. Report of Packaging and Handling Deficiencies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73A/AFR 400-54/MCO 4430.3F.

c. Discrepancy in Shipment Report (DISREP)(SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP)(SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15.

1-4. Reporting Equipment Improvement Recommendations (EIR)

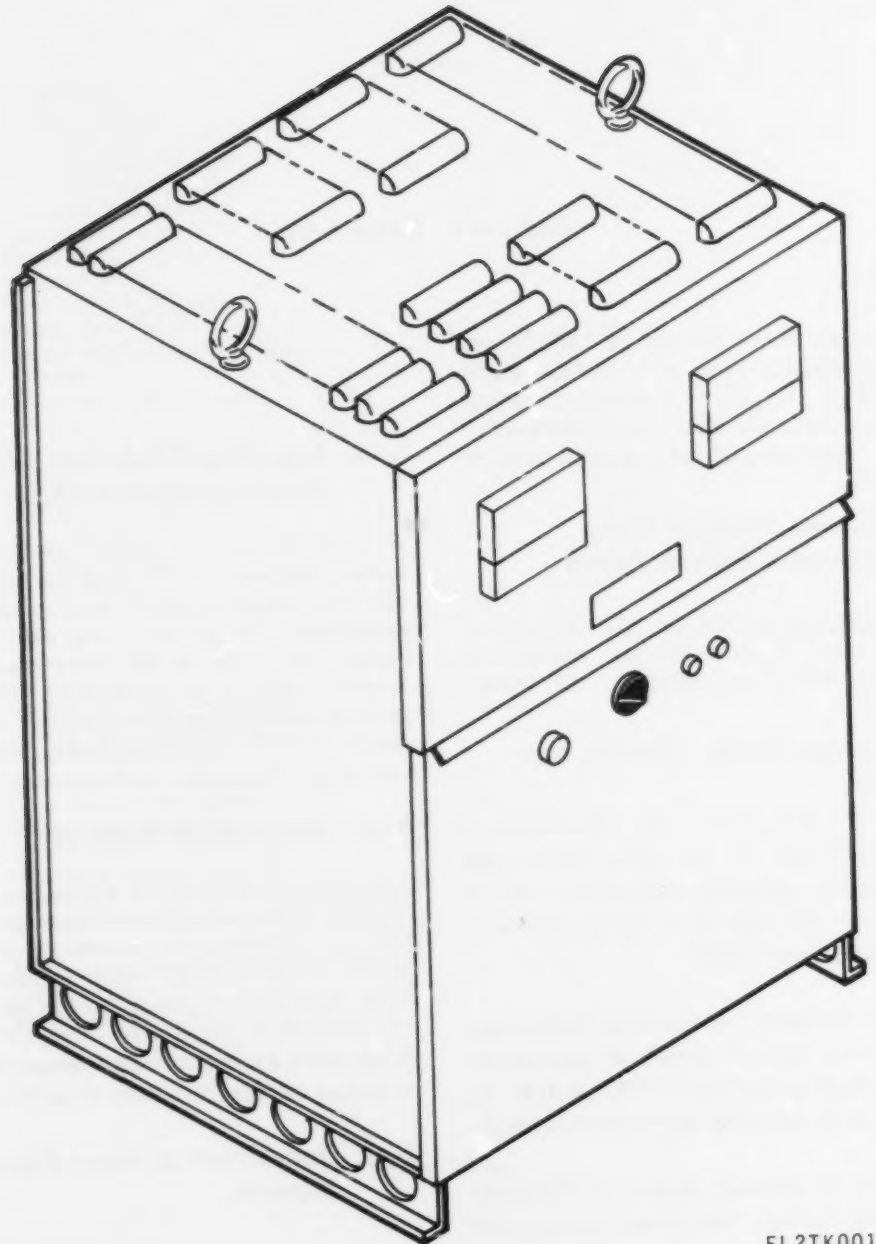
If your PP-7462/U needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-ME-MP, Fort Monmouth, New Jersey 07703-5007. We'll send you a reply.

1-5. Administrative Storage

Administrative storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the PMCS charts before storing. When removing the equipment from administrative storage the PMCS should be performed to assure operational readiness. Disassembly and repacking of equipment for shipment or limited storage are covered in section IV, chapter 5.

1-6. Destruction of Army Electronics Materiel

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.



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Figure 1-1. Power supply PP-7162/U.

Section II. DESCRIPTION AND DATA

1-7. Purpose and Use

a. Purpose. Power Supply PP-7462/U converts 3-phase alternating current (ac) to 28 volts direct current (dc).

b. Use. The power supply is used to provide power to shop equipment installed in Electronic Repair Shop, AN/ASM-189A. It may also be used in other applications which require similar ac/dc characteristics.

1-8. Description of Equipment

a. Physical Description. The power supply consists of metal enclosed electrical components designed to be secured to the floor by base mounting hardware. The operating controls consist of an ON-OFF momentary push button switch, a voltage adjustment control knob and indicating voltage and current meters and power ON lamp mounted on the front panels. Openings for cooling air are provided in the bottom, top and rear of the enclosure. Input and output terminals are located on the back of the power supply within the external enclosure.

b. Electrical Description.

(1) The power supply is basically a full wave bridge type rectifier used to convert 3-phase ac power to regulated dc power with minimum output ripple. Operation of the power supply is manually controlled (start and stop), and the output voltage is automatically regulated. The power supply can be used wherever the need for a close-regulated dc power source exists. It is designed for any combination of resistive, inductive, capacitive or battery loads within its rating.

(2) Power supply regulation is accomplished by the control of saturable reactors connected in series with power transformer secondary windings and silicon diode rectifiers. When the power supply is energized, any deviation of the output voltage from the set value is sensed through a sensor circuit. The deviation is compared to a standard output

from a control unit assembly. A corrective current is applied to the saturable reactor coils to restore the output voltage to the set value.

(3) A voltmeter and ammeter indicate output voltage and current respectively. An indicator lamp, when lighted, indicates source power is being applied to the power transformer (and the power supply is energized).

1-9. Differences Between Models

This publication covers two models: the 1C36-500K24S for 60 Hz operation, and the 1C36-500K2234S for 50/60 Hz operation. For purposes of accuracy and brevity references to PP-7462/U in this manual pertain to both the PP-7462/U and PP-7462A/U unless otherwise delineated.

1-10. Tabulated Data

Model No.:	1C36-500K24S 1C36-500K2234S (Christie Electric Corp.)
Size:	38 3/4 inches high, 23 1/2 inches wide, 25 inches deep
Weight:	720 lbs
Input Voltage	
60 Hz Operation:	187-229 volts, 207-253 volts, or 414-506 volts, 3-phase, ac
50 Hz Operation:	342-418 volts, 3-phase, ac
Input Current (maximum)	
60 Hz Operation:	104 amperes at 230 volts input, 52 amperes at 460 volts input
50 Hz Operation:	63 amperes at 380 volts input
Output Voltage	
6- Hz Operation:	28 volts dc (nominal), 26-36 volts dc adjustable range
50 Hz Operation:	28 volts dc (nominal), 28-31 volts dc adjustable range
Output Current:	500 amperes continuous
Output Voltage Regulation:	Static plus or minus 0.25% Dynamic 5 volts at 1/2 load, 8 volts at full load
Response Time:	100 millisecond for 63% reduction of transient
Ripple Voltage:	1% rms
Operating ambient Temperature:	Minus 55 deg. C (-67 deg. F) to plus 55 deg. C (+131 deg. F) Decreased performance exists between -55 deg. C to 0 deg. C

CHAPTER 2

SERVICE UPON RECEIPT AND INSTALLATION

Section I. SERVICE UPON RECEIPT OF MATERIEL

2-1. Unpacking

The power supply is shipped in a reusable wooden crate to protect the power supply against damage. When uncrating the power supply, observe the following instructions:

WARNING

This equipment weighs in excess of 700 pounds. Do not attempt to lift the power supply without adequate manpower. Use mechanical devices to the greatest extent possible when the equipment must be moved.

- a. Uncrate power supply with care, so as not to damage the power supply.
- b. Remove upper rear panel and swing upper front panel 180 degrees to one side of power supply. Check to see that all desiccant bags and other preservatives are removed from interior and exterior of the power supply.
- c. Visually inspect power supply for any damage

which may have occurred in transit; then, install the panels. It is suggested that the wooden crate and protective cushioning be conserved in the event that the power supply may eventually require reshipment. No special tools are required.

2-2. Checking Unpacked Equipment

- a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6 (para 1-3).
- b. Check the equipment against the component listing in Appendix B and the packing slip to see if the shipment is complete. Report all discrepancies in accordance with paragraph 1-3. The equipment should be placed in service even though a minor assembly or part that does not affect proper functioning is missing.
- c. Check to see whether the equipment has been modified. (Equipment which has been modified will have the MWO number on the front panel, near the nomenclature plate). Check also to see whether all currently applicable MWO's have been applied. (Current MWO's applicable to the equipment are listed in DA Pam 310-7).

Section II. INSTALLATION INSTRUCTIONS

2-3. Location (fig. 2-1)

- a. The power supply should be floor mounted.
- b. The intake and exhaust openings must be clear and sufficient openings in the rack should be provided for air flow. The fan installed in the power supply provides approximately 2000 cfm of cooling air. DO NOT install near a heat source which will cause ambient temperature to exceed +55 degrees C (131 F).

- c. Locate the power supply so that the output cable will not exceed 50 feet in length when the cable is installed.

2-4. Cable Fabrication

The power supply is shipped completely assembled, except for the input cable, output cable, and sensor cable. These cables must be fabricated by installation team according to table 2-1 before using the power supply.

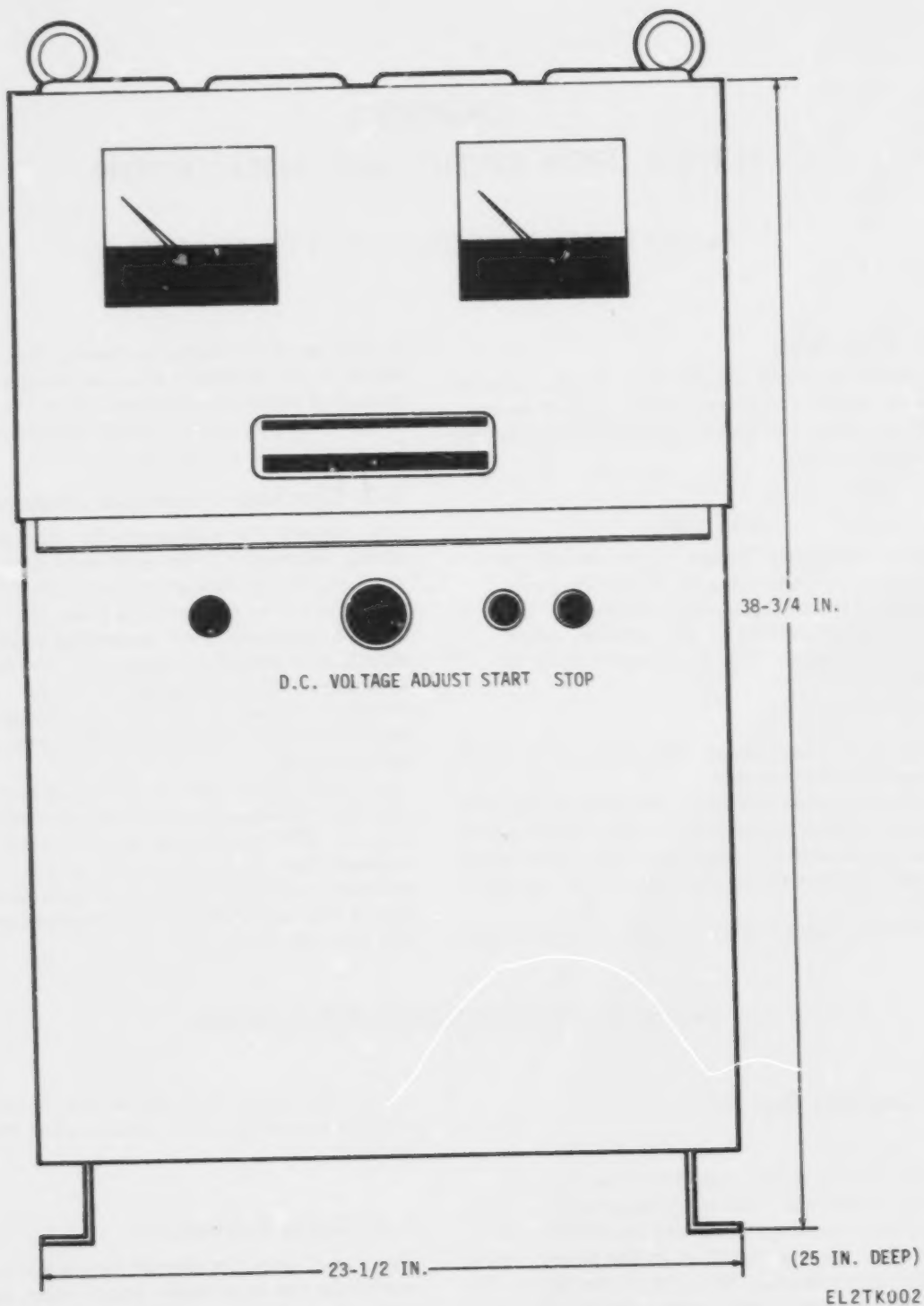


Table 2-1. Cable Fabrication

CABLE	LENGTH	CONDUCTORS				INSTALLED	
		NO.	SIZE	FROM		TO	
Input cable	Up to 100 ft	4	0	Ac power source		Term. L1, L2, and L3 (behind upper rear panel) and chassis ground (green lead)	
Output cable	25 ft or less	2	4/0	POS term. (behind upper rear panel)		Positive side of external load	
				NEG term. (behind upper rear panel)		Negative side of external load	
	25 ft to 50 ft	2	2X4/0 or 250 MCM	POS term. (behind upper rear panel)		Positive side of external load	
				NEG term. (behind upper rear panel)		Negative side of external load	
Sensor cable	Length to be same as output/cable	2	10	+term. of sensor panel (behind upper rear panel)		Positive side of external load	
				-term. sensor panel (behind upper rear panel)		Negative side of external load	

2-5. Electrical Connection

WARNING

The ac power sources used with this power supply are dangerous to life. Voltages as high as 490 volts ac may be present. Be very careful when working around the ac source and inside the power supply. Open the circuit breaker or switch before working on the inside of the equipment. Be certain that adequate warnings are posted to prevent accidental turn on of the power supply while it is being worked on.

a. Determine the power source (60 Hz — 400 to 490 vac, 207 to 253 vac, 187 to 229 vac, 3-phase, 57 to 63 Hz power) (50 Hz — 342 to 418 vac, 3-phase, 49 to 51 Hz power). -

b. Remove the lower front panel.

NOTE

Make sure that the link retaining nuts are secure when connecting links are adjusted.

c. Set the adjustment links on the transformer terminal board for the proper input voltage being used (fig. 2-2).

d. Fabricate input and output cables (and sensor cables, if required). (Refer to paragraph 2-4).

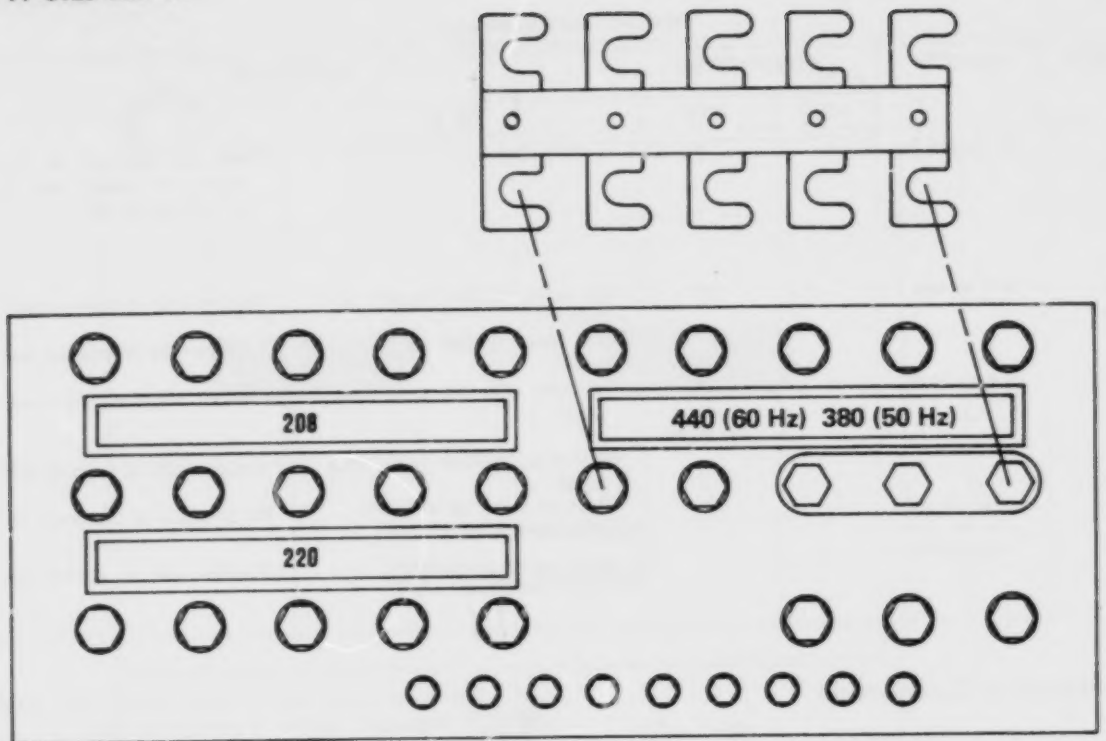
e. Shut down external ac power source.

f. Connect the ac input of the power supply to terminals L1, L2, L3 of the input terminal board on the rear of the power supply inside the enclosure. Use wires specified in table 2-1 for the maximum input current. Measure the supply voltage and refer to paragraph 1-10 for the input current. Connect a fourth wire (green) to the ac supply ground.

g. Connect output cables.

NOTE

If a switching device is used in the external load, and remote sensing is to be accomplished (step h) the sensor cable must be connected to the power supply side of the switching device. Observe positive and negative polarities when installing the sensor cable for remote sensing.



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Figure 2-2. Connecting link installation.

h. Sensing for voltage regulation is normally accomplished at the power supply dc output terminals (local sense). The sense switch (fig. 2-4) is to be set to LOCAL position for local sensing. If sensing for voltage regulation is to be accomplished at the load end of the output cable (remote sense), proceed as follows:

- (1) Set the sense switch to REMOTE.
- (2) Connect remote sensor cable, fabricated in step *d*, as indicated in table 2-1.
- i.* Install panel removed in step *b*.
- j.* Set the external ac power source to on position. Power supply is now ready for operation.

2-6. Preliminary Check-out

a. Fan Rotation. The first time the power supply is started after being connected to a source of ac power, the cooling fan must be checked to see that it rotates in the proper direction, air must move up and out of the top. If not, turn the power supply off, pull the ac disconnect in the ac line ahead of the starter, and interchange any two of the three ac supply wires. This should reverse the fan rotation.

b. Operational check. Before connecting the dc load, proceed as follows: Rotate the voltage control fully counter-clockwise before starting the unit. Now push the "START" button (hold until the fan has come up to speed). This should close the ac starter, light the pilot lamp, give a reading on the dc voltmeter and the fan should rotate so that the air stream moves up through the cabinet. After the above check has been made, set to desired dc voltage, push the "STOP" button; connect the dc load and start the power supply. Reset the dc voltage to the desired value if necessary by rotating the control clockwise to increase (or counter-clockwise to decrease) the voltage. Check the reading of the ammeter as the voltage is being increased.

CAUTION

Do not exceed the rating of the power supply; if the current stays above the rated value, turn the power supply off and reduce the load. If the power supply is turned off during normal operation, it can be restarted by simply pushing the "START" button. The power supply should be turned off when it is not being used.

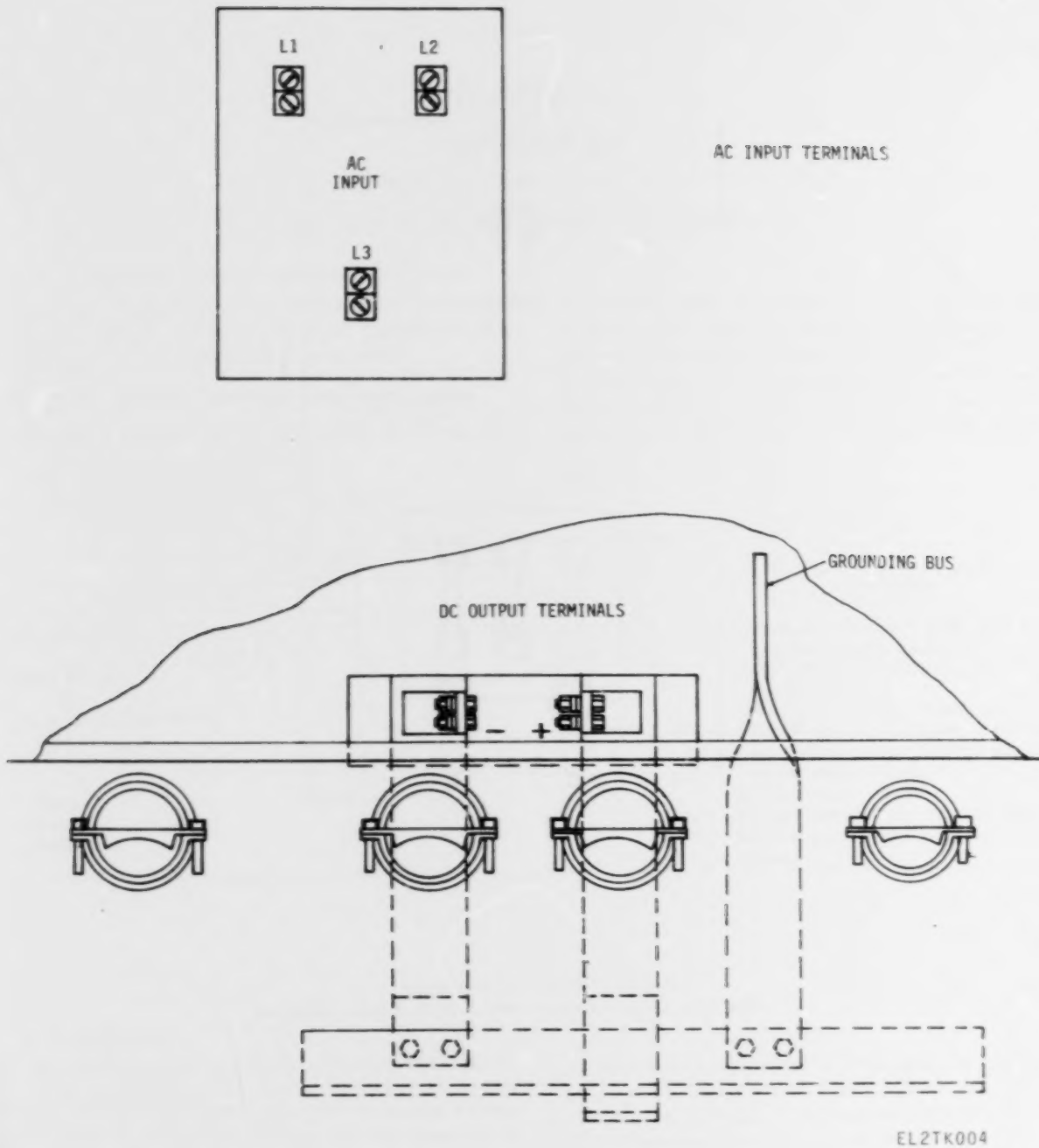


Figure 2-3. Cable connecting terminals.

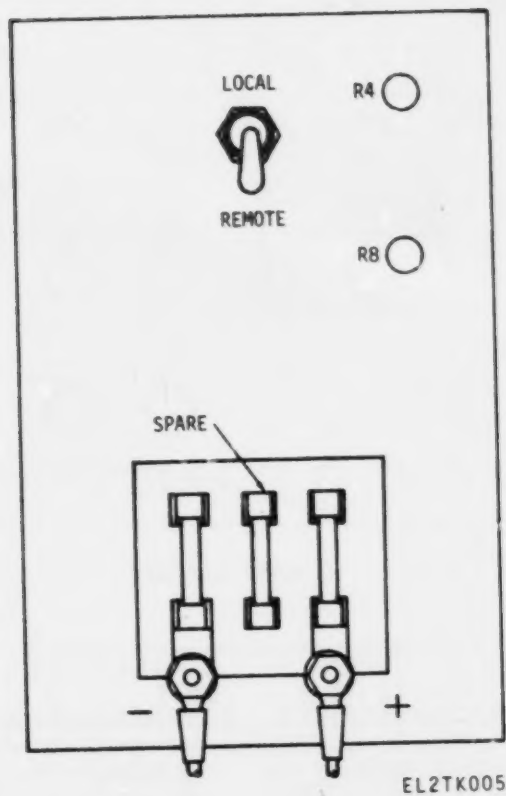


Figure 2-4. Local and remote sense switch and cable connections.

CHAPTER 3

OPERATION

Section I. CONTROLS AND INSTRUMENTS

3-1. Damage From Improper Settings

Read this chapter carefully before using the power supply. Follow the instructions in paragraphs 3-3 through 3-5 to operate the power supply.

3-2. Operator Controls and Indicators

The power supply controls and indicators are on the

front panel. They are shown in figure 3-1 and their functions are listed in table 3-1. Voltmeter M1, ammeter M2, indicator lamp DS1, a DC VOLTAGE ADJUST knob, and monetary START-STOP pushbutton switch S1 are the only controls used during operation; all are located on the front of the cabinet.

Table 3-1. Controls and Indicators

Control or Indicator	Position	Function
START Button	Depressed in	Starting control; must be held in until fan operating speed is reached.
STOP Button	Depressed in	Stopping Control; momentarily pressed in to shut unit off.
DC VOLTAGE ADJUST (potentiometer)		Adjust output voltage. Turning in (cw) the RAISE direction, increases output voltage; turning in (ccw) LOWER direction, reduces output voltage.
Voltmeter		Indicates output voltage.
Ammeter		Indicates current being drawn by load.
Indicator lamp		Indicates power supply is on and drawing power.

Section II. OPERATION

3-3. General.

The power supply is initially energized from an external ac power source when a START pushbutton (part of a START-STOP pushbutton) is pressed. 3-phase ac power is used as input power; the operation of the power supply will deliver 26 to 36 volts dc (60 Hz operation) or 28 to 31 volts dc (50 Hz operation) at 500 amps continuously at the output terminals.

3-4. Starting (fig. 3-1)

START the power supply by pressing START button on the front panel. Hold the button down until the fan

motor comes up to speed. Check that the indicator light on the front panel lights. Check the output voltage and current. If the output current exceeds 500 amperes continuously, stop the power supply.

3-5. Stopping (fig. 3-1)

STOP the power supply by simply pressing the STOP button and reduce the load before restarting. STOP the power supply when not in use by pressing the STOP button on the front panel.

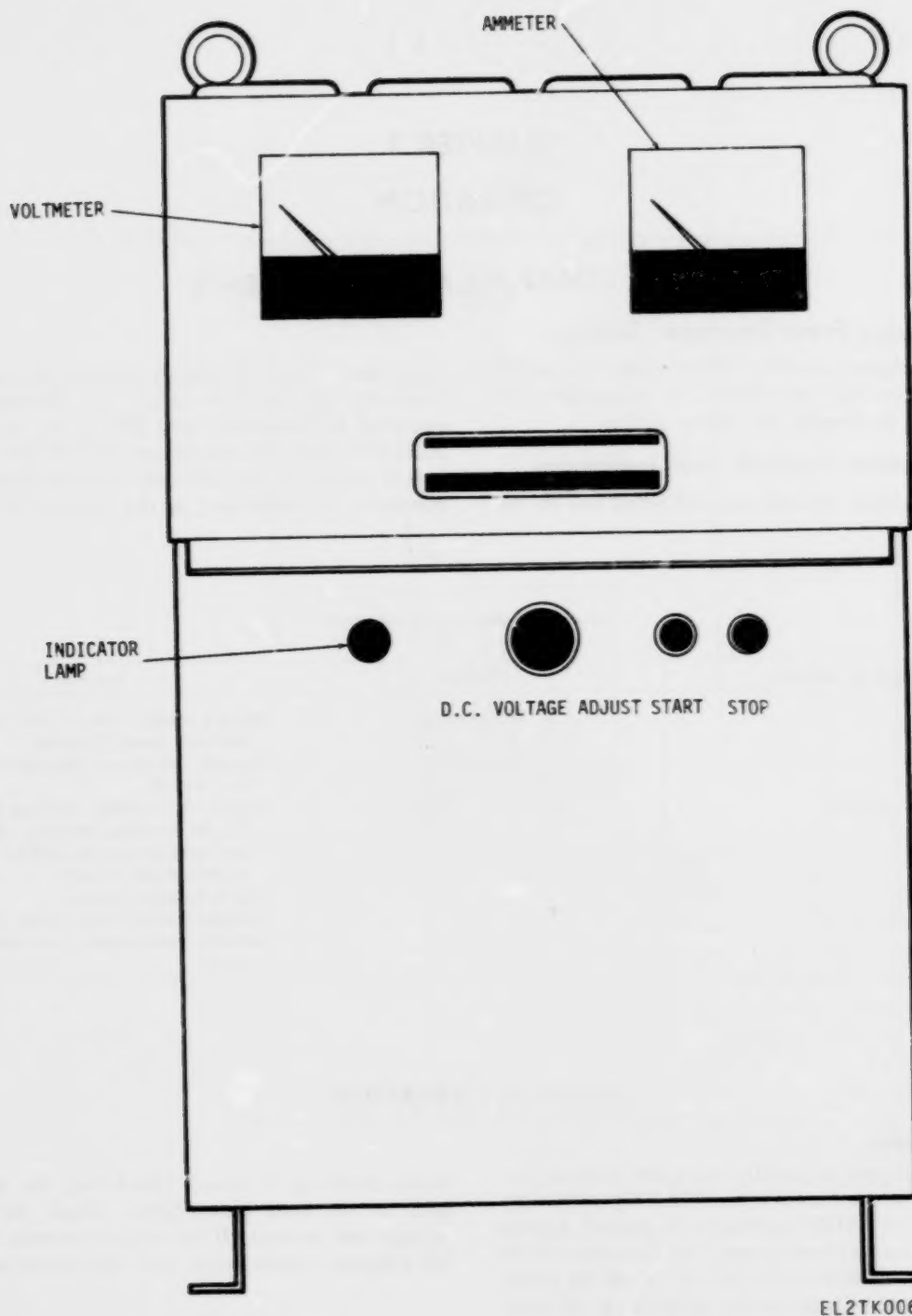


Figure 3-1. Controls and instruments.

CHAPTER 4

OPERATOR MAINTENANCE INSTRUCTIONS

4-1. Scope of Operator's Maintenance

The maintenance duties assigned to operator personnel of the power supply are listed below, together with a reference to the paragraphs covering the specific maintenance function.

a. Operator preventive maintenance checks and services (para 4-2).

b. Troubleshooting (para 4-5).

4-2. Operator's Preventive Maintenance

Operator's preventive maintenance is the systematic care, servicing and inspection of equipment to prevent the occurrence of trouble, to reduce down time, and to maintain equipment serviceability.

a. *Systematic Care.* The procedures given in paragraph 4-3 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.

b. *Preventive Maintenance Checks and Services.* The operator's preventive maintenance checks and services chart (table 4-1) outline functions to be performed at specific intervals. These checks and

services are to maintain Army equipment in a combat serviceable condition; that is, in good general (physical) condition and in good operating condition. To assist operators in maintaining combat serviceability, the charts indicate what to check, and how to check, and the normal conditions. The references column lists the paragraphs or manuals that contain detailed repair or replacement procedures. If a defect is noted that cannot be remedied by performing the corrective actions listed a higher level of maintenance or repair is required. Records and reports of these checks must be made in accordance with TM 38-750.

4-3. Operator's Preventive Maintenance Checks and Services Periods

Operator's preventive maintenance checks and services are required on a daily basis. Table 4-1 specifies checks and services that must be accomplished daily and under the special conditions listed below;

a. When the equipment is initially installed.

b. When the equipment is reinstalled after relocation for any reason.

Table 4-1. Operator Preventive Maintenance Checks and Services

NOTE: Within designated interval, these checks are to be performed in the order listed.

B — Before D — During

Item No.	Interval		Item to be Inspected	Procedure	Equipment will be reported Not Ready (Red) if:
	B	D			
1	*		Power Supply	Check to see equipment is complete.	
2	*		Power Supply	Clean exterior surfaces including meter glasses.	
3	*		Meters	Check for cracked glass or bent pointers.	
4	*		Connectors and cable	Check tightness of connectors. Cable free of cracks or fraying.	
5	*		Controls	Check that each control action is free of binding and there is no looseness.	
6	*		Metal surfaces	Clean and touchup paint.	
7		*	Operation	Check operation in accordance with operating procedures (para 3-3 thru 3-5).	

c. At least once each week if the equipment is maintained in a standby condition.

WARNING

Open circuit breaker or disconnect switch in the ac supply ahead of the power supply before removing any panels.

4-5. Operator Troubleshooting Information

Troubleshooting of the power supply is based upon the operational check contained in the preventive maintenance checks and services table 4-1. If an abnormal condition or result is observed, note the trouble in the troubleshooting chart and perform the corrective actions indicated. If the corrective measures indicated do not result in correction of the trouble, or if there is no corresponding trouble in the troubleshooting chart, higher category of maintenance is required.

4-6. Operator Troubleshooting Chart

Step No.	Trouble Symptom	Probable trouble	Checks and Corrective Measures
1	No output voltage available.	a. No input power present at terminals L1, L2, and L3.	a. Make sure ac power is being supplied to power supply and that connections are tight.
		b. Power supply not energized.	b. Press Start pushbutton.
		c. Fault in power supply circuits.	c. Higher level maintenance required.
2	Protective devices trip. Hum from transformer T1 is heard above fan motor noise.	a. One ac input phase not being delivered to power supply.	a. Check ac input that all phases are being delivered.
		b. Shorted diode.	b. Higher level maintenance required.
3	Power supply delivers required output, but indicator lamp does not light.	a. Defective lamp.	a. Higher level maintenance required.
		b. Defective lamp circuit.	b. Higher level maintenance required.
4	Output voltage not within specified adjustment range 26-36 volts.	Faulty power supply circuit.	Higher level maintenance required.
5	Excessive current flow indicated.	Faulty power supply circuit.	Higher level maintenance required.
6	Regulation is poor, or operation is erratic.	Faulty power supply circuit.	Higher level maintenance required.
7	Power supply delivers required output but voltmeter M1 or ammeter M2 indicates 0.	Faulty power supply circuit.	Higher level maintenance required.
8	Cooling fan is not pumping air out top of power supply.	Faulty power supply circuit. 1 phase reversed.	Higher level maintenance required. Reverse any 2 input power leads.

CHAPTER 5

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. GENERAL

5-1. Scope of Organizational Maintenance

The maintenance duties assigned to organizational maintenance personnel are listed below, together with a reference to the paragraphs covering the specific maintenance function.

a. Monthly preventive maintenance checks and services (table 5-1).

b. Quarterly preventive maintenance checks* and services above and beyond the monthly and daily checks are not required.

5-2. Tools, Materials, and Test Equipment Required for Organizational Maintenance

The following tools and test equipment are required.

- a. Tool Kit TK-101/G
- b. Multimeter AN/URM-105C
- c. Lint-free cloth.
- d. Air hose
- e. Cleaning Compound, Freon PCA, Type TF (TRICHLOROTRIFLUOROETHANE)
- f. Brush, MIL-G-7241.

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

5-3. Organizational Preventive Maintenance

a. Organizational preventive maintenance is the systematic care, inspection, and servicing of equipment to maintain it in serviceable condition, prevent breakdowns, and assure maximum operational capability. Preventive maintenance is the responsibility of all levels of maintenance concerned with the equipment and includes the inspection, testing, and repair

or replacement of parts, subassemblies, or units that inspection and testing indicate would probably fail before the next scheduled periodic service. Preventive maintenance checks and services at the organizational level, are made weekly and monthly unless otherwise directed.

b. Maintenance forms and records to be used and maintained on this equipment are specified in TM 38-750.

Table 5-1. Organizational Preventive Maintenance Checks and Services

Legend
W—Weekly M—Monthly

Item no.	Interval		Item to be Inspected	Procedures
	W	M		
1	*		Exterior surfaces	See that exterior surfaces are free of dust, dirt oil, grease, water, fungus, and corrosion. Clean as needed. Inspect cabinet exterior for loose hardware and corrosion. Tighten loose hardware remove corrosion.
2	*		Painted surfaces.	Check to see that outer painted surfaces are free of bare spots and corrosion, Refinish as needed.
3	*		Power cables	Check for cuts, cracks, wiring breaks, and damaged connectors and clips.

Item no.	Interval		Item to be Inspected	Procedures
	W	M		
4	*		Meter glass	Clean and check for cracks and breaks.
5		*	Power indicator Lamp	Check to see that lamp is firmly seated its holder. Tighten if necessary.
6		*	Cabinet interior	Remove covers. Check to see that cabinet interior is free of dust, dirt, and other foreign matter. Clean as needed.
7		*	Terminal boards	Check terminal boards for cracks and breaks. Check for loose terminal screws and connections; tighten as necessary.
8		*	Fuses	Check fuses for firm seating in fuse blocks. Tighten clips on fuse blocks if necessary.
9		*	Other electrical components	Examine electrical parts for signs of overheating.
10		*	Internal wiring	Inspect for cut or frayed insulation and broken leadwires.
11		*	Overall operation	Check operation in accordance with operating procedures (para 3-3 through 3-5). Be alert for any signs of malfunction.
12		*	Publications	See that all publication are complete, serviceable, and current (DA Pam 310-4)
13		*	Modifications	Check DA Pam 310-7 to determine if new applicable MWO's have been published. All urgent MWO's must be applied immediately. All NORMAL MWO's must be scheduled. (TM-38-750 and DA Pam 310-7).
14		*	Spare parts	Check spare parts for general condition and method of stockage. No overstock should be evident and all shortages must be on valid requisitions.

5-4. Monthly Maintenance

Perform the maintenance functions indicated in the preventive maintenance checks and services chart (table 5-1) once each month. A month is defined as approximately 30 calendar days of 8-hour-per-day operation. If the equipment is operated 16 hours a day, the monthly preventive maintenance checks and services should be performed at 15-day intervals. Adjustment of the maintenance interval must be made to compensate for any unusual operation conditions. Equipment maintained in a standby condition must have monthly preventive maintenance checks and services. Equipment in *limited storage* (requires service before operation) does not require monthly preventive maintenance.

5-5. Cleaning

Inspect the exterior surfaces of the power supply. The exterior should be free of dirt, grease and fungus.

a. Remove the dust and other dirt with a clean, soft cloth.

WARNING

Provide adequate ventilation when using TRICHLOROTRIFLOUROETHANE (Cleaning Compound, Freon, PCA, Type

TF). Prolonged breathing of the vapor should be avoided. The solvent should not be used near heat or flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLOUROETHANE dissolves natural oils, prolonged contact with the skin should be avoided. When necessary, use gloves that the solvent can not penetrate. If the solvent is taken internally, consult a physician immediately.

b. Remove grease, fungus, and ground-in dirt from the cabinet. If necessary, use a cloth dampened, not wet, with cleaning compound (TRICHLOROTRIFLOUROETHANE).

c. Remove dirt from the dc output cable with a non-metallic brush.

CAUTION

Do not press on meter glass when cleaning. The meter may be damaged by excess pressure.

d. Clean the front panel meter and control knob, using a clean soft cloth. If necessary, dampen the cloth with water. Mild soap may be used for more effective cleaning.

5-6. Rustproofing and Painting

a. Rustproofing. When the finish on the power supply has become badly scarred or damaged, rust and corrosion can be prevented by touching up the bare spots. Use No. 000 sandpaper to clean the surface down to the bare metal. Obtain a bright smooth finish.

b. Painting. Remove the rust and corrosion from the metal surface as explained in *a* above. Brush two

thin coats of paint on the bare metal to protect it. Refer to the applicable cleaning and refinishing practices specified in TB 43-0118.

WARNING

Open circuit breaker or disconnect switch in the ac supply ahead of power supply before removing any panels.

Section III. TROUBLESHOOTING

5-7. Troubleshooting Information

Troubleshooting at organizational support includes all the techniques outlined for operator's level and any special or additional techniques required to isolate a defective part.

a. General. The first step in servicing a problem with the power supply is to localize the fault, which means tracing the fault to a defective circuit responsible for the abnormal indication. The second step is to isolate the fault, which means locating the defective part or parts. Some defective parts, such as shorted transformers, can often be located by sight, smell, and hearing. Most defective parts; however, must be isolated by checking voltages and resistance.

b. Localization and Isolation. The first step in tracing trouble is to locate the circuit or part at fault by the following methods.

(1) *Visual inspection.* The purpose of visual inspection is to locate faults without testing or

measuring the circuits. All meter indications or other visual signs should be observed and an attempt made to localize the fault to a particular part.

(2) *Operational Checks.* Operational checks frequently indicate the general location of trouble. In many instances, the checks will help in determining the exact nature of the fault. (see paragraphs 3-3 through 3-5).

(3) *Troubleshooting chart.* Troubleshooting the power supply at the organizational level is based on an operational check. To troubleshoot the power supply, perform the operation functions until an abnormal indication or result is observed (para 3-3 through 3-5); then perform checks and corrective actions indicated in the troubleshooting chart. If the corrective measures indicated do not result in the correction of the trouble, higher level maintenance is required.

5-8. Organizational Troubleshooting Chart

Step No.	Trouble Symptom	Probable trouble	Checks and Corrective measures
1	No output voltage available.	<i>a.</i> No input power present, at terminals L1, L2, and L3. <i>b.</i> Power supply not energized. <i>c.</i> Airflow switch defective. <i>d.</i> START pushbutton defective. <i>e.</i> Fan motor B1 defective. <i>f.</i> Transformer T1 windings open	<i>a.</i> Make sure ac power is being applied to power supply. Turn power off and check that connections are tight. <i>b.</i> Press START pushbutton. <i>c.</i> Replace airflow switch. Higher level maintenance required. <i>d.</i> Replace pushbutton. Higher level maintenance required. <i>e.</i> Replace fan motor B1. Higher level maintenance required. <i>f.</i> Replace transformer T1. Higher level maintenance required.
2	Protective devices trip. Hum from transformer T1 is audible above fan motor noise.	<i>a.</i> One ac input phase not being delivered to power supply. <i>b.</i> Semiconductor diode(s) shortened.	<i>a.</i> Check that all 3 phases are being delivered. <i>b.</i> Higher level maintenance required.
3	Excessive current flow indicated.	<i>a.</i> One or more diodes defective. <i>b.</i> Transformer T1 winding open.	<i>a.</i> Replace defective diode/diodes. Higher level maintenance required. <i>b.</i> Replace transformer T1. Higher level maintenance required.

Step No.	Trouble Symptom	Probable trouble	Checks and Corrective measures
4	Output voltage less than nominal but more than 26 vdc.	a. Resistors R5 and R6 out of adjustment. b. One ac phase in transformer T1 open. c. One ac phase not being applied to power supply. d. Excessive voltage drop exists across output cable. e. Winding in saturable reactor L1 open. f. Diode in bridge open. g. During remote-sense operation of power supply, power supply not prepared for remote sense.	a. Calibrate and adjust resistors R5 and R6. Higher level maintenance required. b. Replace transformer T1. Higher level maintenance required. c. Make sure 3-phase power is being applied. d. Prepare power supply for remote sense (Refer to paragraph 2-5). e. Replace reactor L1. Higher level maintenance required. f. Replace defective diode. Higher level maintenance required. g. Prepare power supply for remote sense (Refer to paragraph 2-5).
5	Output voltage less than 26 vdc but more than 0.	a. Control winding in transformer T1 open. b. Control unit assembly Z1 defective.	a. Replace transformer T1. Higher level maintenance required. b. Replace control unit assembly Z1. Higher level maintenance required.
6	Output voltage more than nominal but less than 36 vdc.	a. Control unit assembly Z1 defective. b. Bleeder resistor R26-28 open.	a. Replace control unit assembly Z1. Higher level maintenance required. b. Replace bleeder resistor(s) R26-28. Higher level maintenance required.
7	Output voltage more than 36 vdc.	a. Control choke open. b. Control unit assembly Z1 failed. c. Windings in saturable reactor L1 shorted or open.	a. Replace choke. Higher level maintenance required. b. Replace control unit assembly Z1. Higher level maintenance required. c. Replace saturable reactor L1. Higher level maintenance required.
8	Output ripple exceeds 1% rms (at -20 deg. C to +55 deg. C or at -4 deg. F to +131 deg. F), or 5% rms (at -55 deg. C, or at -67 deg. F).	a. Resistor assembly not correctly calibrated, or one or more resistors R12 thru R17) of assembly are open. b. Open power diode (CR1-CR6). c. Ac input voltage unbalanced. d. Filter capacitor (C1 thru C7) defective.	a. Calibrate and adjust resistor assembly. Replace defective resistors. Higher level maintenance required. b. Replace diode. Higher level maintenance required. c. Balance power source. d. Replace defective capacitor. Higher level maintenance required.
9	Power supply delivers ac component at output.	a. Filter choke L2 shorted.	a. Replace filter choke L2.
10	Regulation poor, or operation erratic.	a. See 8a, 8b, 8c. a. Transformer T1 defective. (not likely) b. Control unit assembly Z1 defective. c. Components of voltage divider circuit defective.	a. Replace transformer T1. Higher level maintenance required. b. Replace control unit assembly Z1. Higher level maintenance required. c. Replace defective components. Higher level maintenance required.
11	Power supply delivers required output, but indicating lamp does not light.	a. Indicating lamp DS1 defective. b. Transformer T1 winding, energizing lamp, is open. Meter indicating O defective.	a. Replace indicating lamp DS1. (para 10). b. Replace transformer T1. Higher level maintenance required. Replace defective meter. Higher level maintenance required.
12	Power supply delivers required output but voltmeter M1 or ammeter M2 indicates 0.		
13	Cooling fan not pumping air out of power supply.	Motor defective.	Replace motor. Higher level maintenance required.

Section IV. ORGANIZATIONAL REMOVAL AND REPLACEMENT PROCEDURES

5-9. General

All components of the power supply are accessible for repair and replacement when the front panels are removed. The following paragraphs cover removal and replacement of specific items which are subject to replacement at organizational level.

5-10. Removal and Replacement of Panel lamp (fig. 3-1)

- a. Unscrew the front lens to expose the defective lamp.
- b. Press in on the indicator lamp and turn it counter-clockwise to unlock.
- c. Pull the defective lamp out and replace it with a new one. Push the lamp in and twist it clockwise to lock.

- d. Replace the front lens.

5-11. Removal and Replacement of Sense Link Fuses (fig. 2-2)

- a. Remove the lower front panel.
- b. Examine the fuses; remove a suspected faulty fuse with fuse pliers; and replace with a new one.
- c. Replace the lower front panel.

5-12. Removal and Replacement of DC Voltage Adjust Knob (fig. 3-1)

- a. Loosen setscrew holding the knob to shaft.
- b. Pull knob away from front panel.
- c. Inspect knob; replace with a new one if needed.
- d. Tighten setscrew.

CHAPTER 6

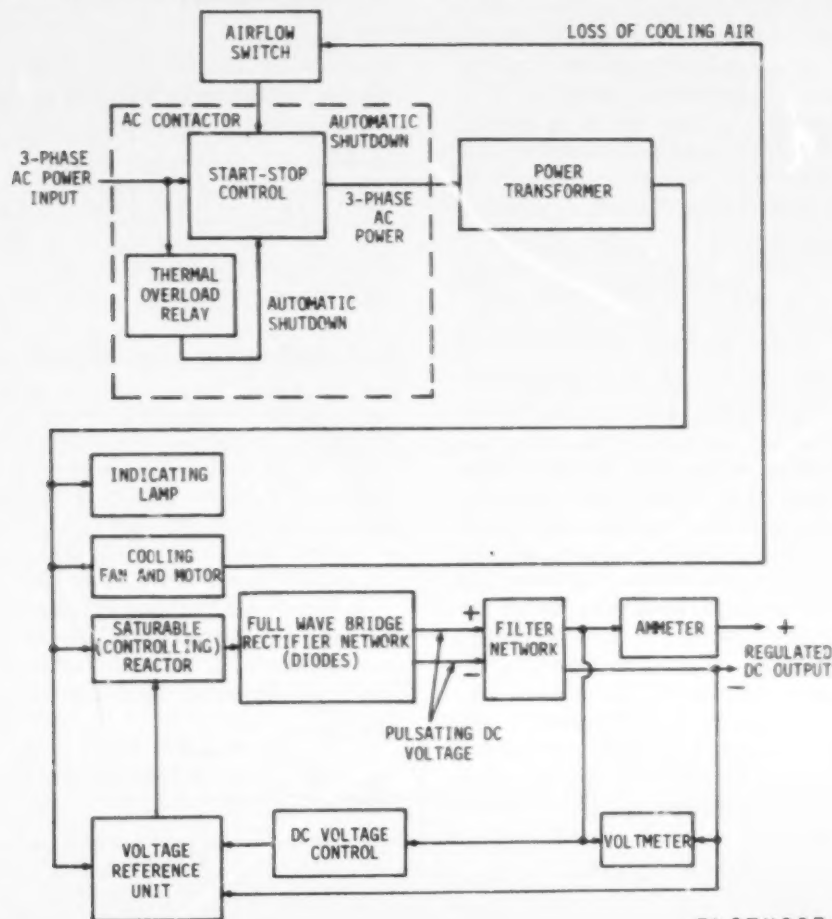
FUNCTIONING OF EQUIPMENT

6-1. General (fig. 6-1)

a. The power supply is basically a full wave bridge-type rectifier used to convert 3-phase ac power to regulated dc power with minimum output ripple. Operation of the power supply is manually controlled (start and stop), and the output voltage is automatically regulated. The power supply can be used wherever the need for a closely-regulated dc power source exists. It is designed for any combination of

resistive, inductive, capacitive, or battery loads within its rating.

b. Power supply regulation is accomplished by the control of saturable reactors connected in series with power transformer secondary windings and silicon diode rectifiers. When the power supply is energized, any deviation of the output voltage from the rated set value is sensed through a sensor circuit. The deviation is compared to a standard output from a control unit assembly. A corrective current is applied to the



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Figure 6-1. Block diagram, PP-7462/U.

saturable reactor coils to restore the output voltage to the rated set value.

c. A voltmeter and ammeter indicate output voltage and current respectively. An indicator lamp, when lighted, indicates source power is being applied to the power transformer (T1), and that the power supply is energized.

6-2. Circuit Functioning (fig. FO-2)

a. The power supply is initially energized from an external ac power source when the START pushbutton (part of the START-STOP switch S1) is pressed. Depending on connecting link installation, 414- to 506-volt, 207- to 253-volt, 3-phase, 57- to 63-Hz ac or 342- to 418-volt, 3-phase, 49- to 51-Hz ac power is used as input power; in either case, operation of the power supply is essentially the same to deliver 26 to 36 vdc power (60 Hz operation) or 28 to 31 vdc (50 Hz operation).

b. The ac input power is applied by the ac contractor to three sets of primary winding of a power transformer. Voltage is applied by one set of secondary windings to the compensator assembly. Voltage is also applied by a second set of secondary windings to a bridge (full wave, silicon diode rectifier) network. Windings of a saturable reactor (L1) are in series with each silicon diode (CR1-CR6) of the bridge network. Part of the voltage applied to the bridge is absorbed by the reactor. The magnitude of dc current through control windings of the reactor determines the voltage being absorbed by the reactor. The bridge network converts the ac voltage to a pulsating dc voltage. The pulsating dc voltage is filtered by a choke-input type filter (L2) to dc voltage.

c. The control unit assembly (Z1) is zener diode, resistor bridge calibrated to have a zero output at a preset current. A portion of the filtered dc output voltage is applied across a resistive dc voltage control unit network and to the bridge reference. This causes a regulating current to flow through the saturable reactor control winding. In this manner, a decrease in power supply output voltage from its set value results in a decrease in the voltage drop across the resistive network. The decrease in output voltage causes a decrease in control unit output, resulting in decrease in current through the saturable reactor winding. A decrease in current in turn

results in the power supply voltage output rising to its set value. The opposite holds true in the case of an increase in power supply output voltage from its rated value. A voltage increase causes the voltage drop across the resistive network to increase in value and the output of the control unit to increase, resulting in an increase in current through the saturable reactor winding. An increase in current in turn results in the power supply voltage output dropping to set value.

d. Trim resistors (R12-R17) are installed in parallel across the output of the saturable reactor windings. These resistors compensate for minor differences in the cores of the saturable reactor; this is accomplished by the trim resistors allowing a different current to flow through each core and slightly changing the degree of saturation.

6-3. Automatic Shutdown Capability (fig. FO-2)

In addition to the STOP pushbutton, used for manual shutdown of the power supply, the power supply is shut down automatically by the following devices:

a. A thermal overload relay (K1) and heaters (HR1-HR3), sensitive to ac input power.

b. An airflow switch, (S2), used to open the START pushbutton circuit in the event the cooling fan and motor (B1) fail.

6-4. Indicators (fig. FO-2)

a. An indicating lamp (DS1) is installed across a secondary winding of the power transformer. When the START pushbutton is pressed to lock in external power and ac power is applied to the transformer, the lamp lights. When manual or automatic shutdown is accomplished, power is removed from the transformer and the lamp goes off.

b. Meters are installed as follows:

(1) Dc voltmeter (M1) is connected across the power supply dc output to measure output voltage (and voltage being applied to regulate the power supply).

(2) Dc ammeter (M2) is connected in series with the power supply output to measure output current.

CHAPTER 7

GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. GENERAL

7-1. Scope of Maintenance

General support maintenance of the power supply consists of the following:

- a. Troubleshooting (para. 7-5 through 7-11).
- b. Replacement of authorized maintenance parts (para. 7-12 through 7-14).
- c. Calibration and testing (para. 7-16). Refer to figure 7-1 for bench test setup.

7-2. Tools, Materials, and Test Equipment.

The following tools, materials, and test equipment are required for maintenance, troubleshooting, and repair:

- a. Tool Kit, Electronic Equipment TK-101/G.
- b. Cleaning Compound, Freon PCA, Type TF.
- c. Electronic Voltmeter ME-30A/U.
- d. Variable Transformer, three-phase.
- e. Adjustable test load, 500 ampere.

Section II. Troubleshooting

7-3. Troubleshooting Information

Troubleshooting at direct support level includes all the techniques outlined for operator's and organizational maintenance level and any special or additional techniques required to isolate a defective part.

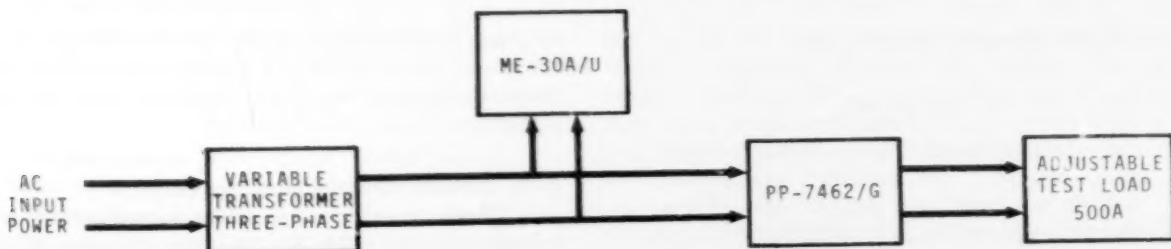
a. *General.* The first step in servicing a problem with the power supply is to localize the fault, which means tracing the fault to a defective circuit responsible for the abnormal indication. The second step is to isolate the fault, which means locating the defective part or parts. Some defective parts, such as shorted transformers, can often be located by sight, smell, and hearing. Most defective parts; however, must be isolated by checking voltages and resistance.

b. *Localization and Isolation.* The first step in tracing trouble is to locate the circuit or part at fault by the following methods.

(1) *Visual inspection.* The purpose of visual inspection is to locate faults without testing or measuring the circuits. All meter indications or other visual signs should be observed and an attempt to localize the fault to a particular part.

(2) *Operational tests.* Operational tests (para. 3-3 thru 3-5) frequently indicate the general location of trouble. In many instances, the test will help in determining the exact nature of the fault.

(3) *Troubleshooting chart.* The troubleshooting chart (para 7-4) lists symptoms of common troubles and gives (or references) the corrective measures. Such a chart obviously cannot include all trouble symptoms that may occur. The repair technician should use this chart as a guide in analyzing symptoms that may not be listed.



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Figure 7-1. Bench test setup.

7-4. Troubleshooting Chart

Step No.	Trouble Symptom	Probable trouble	Checks and corrective measures
1	No input voltage available.	a. Airflow switch S2 defective. b. START pushbutton S1 defective. c. Fan motor B1 defective. d. Transformer T1 windings open.	a. Replace airflow switch. b. Replace pushbutton. c. Replace fan motor. d. Replace transformer.
2	Protective devices trip. Hum from transformer T1 audible above fan motor noise.	Semiconductor diode(s) CR1-CR6 shorted.	Replace defective diode.
3	Excessive current flow indicated.	a. One or more diodes CR1-CR7 defective.	a. Replace defective diode/diodes, CR1-CR7.
4	Output voltage less than nominal but more than 26 vdc.	b. Transformer T1 winding. a. Resistor R5 and R6 out of adjustment.	b. Replace transformer. a. Calibrate and adjust resistors R5 and R6 (para 7-16).
5	Output voltage less than 26 vdc but more than 0.	b. One ac phase in transformer T1 open. c. Diode in bridge open.	b. Replace transformer. c. Replace defective diode.
6	Output voltage more than nominal but less than 36 vdc.	a. Control unit assembly Z1 defective.	a. Replace control unit assembly.
7	Output voltage more than 36 vdc.	b. Control winding in transformer T1 open. a. Control unit assembly Z1 defective.	b. Replace transformer. a. Replace control unit assembly.
8	Output ripple exceeds 1% rms (at -20 deg. C to +55 deg. C or at -4 deg. F to +131 deg. F), or 5% rms (at -55 deg. C, or at -67 deg. F).	b. Bleeder resistor R26-28. a. Control choke open. b. Control unit assembly Z1 failed. c. Windings in saturable reactor L1 shorted or open.	b. Replace bleeder resistor(s). a. Replace choke. b. Replace control unit assembly. c. Replace saturable reactor.
9	Power supply delivers ac component at output.	a. Resistor assembly not correctly adjusted, or one or more resistors R12 thru R17 of assembly are open.	a. Adjust resistor assembly (para 7-16). Replace defective resistors.
10	Regulation poor, or operation erratic.	b. Open power diode (CR1-CR6). c. Filter capacitors (C1 thru C7) defective. a. Filter L2 shorted.	b. Replace diode. c. Replace defective capacitor. a. Replace filter choke.
11	Power supply delivers required output, but indicating lamp does not light.	b. Filter capacitor (C1 thru C7) defective. a. Transformer T1 defective.	b. Replace defective capacitor. a. Replace transformer.
12	Power supply delivers required output but voltmeter M1 or ammeter M2 indicates 0.	b. Control unit assembly Z1 defective. c. Components of voltage divider circuit defective.	b. Replace control unit assembly. c. Replace defective components.
13	Cooling fan not pumping air out of power supply.	Transformer T1 winding, energizing lamp, is open.	Replace transformer T1.
		Meter indicating 0 defective.	Replace defective meter.
		Motor defective.	Replace motor.

7-5. Voltage and Resistance

WARNING

Be extremely careful when making voltage measurements. Use insulated test probes and do not touch any internal part of the power supply while it is energized.

Refer to the power supply schematic diagram (fig FO-2) for available data on voltage and resistance values. Make all resistance measurements with the equipment deenergized and with the part disconnect-

ed from the remainder of the circuit. Voltage and resistance values which can be adjusted to calibrate the performance of the power supply are described in paragraphs 7-16.

7-6. Power supply has no output

a. Check for starter operation by measuring voltage at terminal T1, T2, T3 of the ac starter (K). The voltage measured should be line voltage and must agree with the link settings on the transformer terminal board. (Refer to figure 2-2 for the correct position of the links). If no voltage is measured w

several minutes and repeat the test since one of the overload relays may have tripped.

WARNING

Dangerous Voltage. Always open the ac circuit breaker or disconnect switch before making any measurements. Connect a meter using a higher range than expected. Close the ac breaker or disconnect switch and read the voltage. The meter can then be set to the proper range for more accurate reading. Remember that dangerous voltage may be present at normally low voltage terminals due to component failure.

b. Check all three phases of the ac supply at input terminal board and at L1, L2, L3 of ac starter (K1).

c. Check the starter (K1) coil circuit through the START-STOP switch (S1) and the air flow switch (S2).

d. Check the power secondary circuit for open. Check power diodes (CR1-CR6) filter choke (L2) and shunt (R1).

7-7. Output voltage is High

a. Check for an open in the bridge circuit of the control unit assembly (Z1) through the voltage adjusting variable and adjustable resistors (R5, R6).

b. Check the main control winding (41-42) of saturable reactor (L1) for open. Check the Zener diodes for open in control unit assembly (Z1).

7-8. Output Voltage is Low

a. Check the Zener diodes and resistors of the control unit assembly (Z1) bridge for short or open. Check the voltage adjusting resistors (R2, R6) for short.

b. Check the power circuit for open diode, saturable reactor winding or transformer winding.

7-9. Load Regulation Poor

If the power supply is operated with remote sense, change to local sense and check the voltage at the output terminals to determine whether the trouble lies in the load regulation circuit (winding 43-44) or in the output cable drop compensation circuit (winding 47-48). If the power supply regulates properly at the output terminals when connected for local sense, the cable drop compensating circuit is malfunctioning. If the load compensation circuit is faulty, check the resistor (a length of resistance wire) (R10), and the control winding (43-44) back to the shunt. Failure can only be caused by an open or a change in the shunt connection. If the cable drop compensation circuit is faulty, check the circuit continuity from the load through the remote sense leads, the fuses (F1, F2), the calibration resistor (R4) and the control winding (47-48). Check also that the cable drop under maximum load does not exceed the regulation limits of the circuit which can normally compensate for cable drops of zero to two volts.

7-10. Line Regulation Poor

Check the circuit of the line voltage compensation unit assembly for opens or defective diodes (CR101-CR103) or resistors (R101, R102).

7-11. Output Voltage Ripple High

a. Check for defective capacitors (C1-C7) by disconnecting capacitors and checking for change in ripple or by checking with a capacitance bridge.

b. Check for open power diode (CR1-CR6).

c. Check for open balancing resistor (set of variable resistors) (R12-R17) connected across saturable reactor to diode connections.

d. Check input 3-phase power for loss of one phase.

e. Check L2 for shorted turns.

Section IV. REMOVAL AND REPLACEMENT PROCEDURES

7-12. General Procedures

All parts of the power supply are accessible when the panels are removed (fig. 7-2).

WARNING

Do not remove power supply panels before first opening the ac circuit breaker or switch which provides power to the unit and securing the breaker or switch in the open position.

Instructions for the removal and replacement of parts are provided in paragraph 7-14. When removing parts or repairing wiring, tag leads and mark termi-

nals for positive identification before disconnecting any wiring to assure proper reconnection. When wiring is replaced, use wire that conforms with the original wiring removed in wire size and marking. Most parts can be reinstalled by remounting them in their original locations, with the original hardware, and reconnecting the leads.

7-13. Power Supply Replacement (fig. 7-2)

WARNING

Open circuit breaker or disconnect switch in the ac supply ahead of power supply before removing any panels.

a. Removal.

(1) Remove rear panel and disconnect input, output, and sensor cables.

(2) Remove hardware securing the base of the power supply to the shelter floor or other structure where the power supply is installed.

WARNING

This equipment weighs in excess of 700 pounds. Do not attempt to lift the power supply without adequate manpower. Use mechanical devices to the greatest extent possible when the equipment must be moved.

(3) Remove the power supply from the operating position.

b. Replacement. Refer to chapter 2 for instructions on installation of the power supply.

7-14. Removal and Replacement of Parts

Figures 7-2 through 7-20 illustrate location and arrangement of parts which may require replacement during maintenance activities. Replacement of the following electrical components will require alignment (para 7-16) of the power supply.

a. Transformer (T1). Refer to figure 7-3 for removal and replacement information.

b. Saturable reactor (L1). Refer to figure 7-3 for removal and replacement of information.

c. Filter (L2). Refer to figure 7-4 for removal and replacement information.

d. Resistors (R12-R17, R33). Refer to figure 7-5 for removal and replacement information.

e. Control unit (Z1). Refer to figure 7-5 for removal and replacement information.

f. Resistors (R5, R11). Refer to figure 7-6 for removal and replacement information.

g. Resistors (R101, R102). Refer to figure 7-7 for removal and replacement information.

h. Diodes (CR101-CR103). Refer to figure 7-7 for removal and replacement information.

i. Diodes (R1-CR6). Refer to figure 7-8 and 7-9 for removal and replacement information.

j. Resistor (R10). Refer to figure 7-13 for removal and replacement information.

k. Bleeder Resistors (R26-R28). Refer to figure 7-16 for removal and replacement information.

l. Resistors (R4, R8). Refer to figure 7-19 for removal and replacement information.

m. Reactor (L3). Refer to figure 7-20 for removal and replacement information.

n. Heaters (HR1-HR3). Refer to figure 7-20 for removal and replacement information.

Section V. ALIGNMENT AND TESTING PROCEDURES

7-15. General

To completely align the power supply, the following steps should be followed. It will not normally be necessary to change all settings. Do not disturb resistor settings unless measurements of the power supply operation indicate that the settings are incorrect.

7-16. Alignment.

a. Adjustment of zener diode bridge (Z1). The bridge consists of two 7.5 volt Zener diodes and two 25 ohm adjustable resistors. With one ampere through the bridge (terminal 4 to terminal 1), the output of the bridge (terminal 2 to terminal 3) should be zero. Check that the components are functional and set the resistors to approximately 15 ohms. Measure the bridge current at terminal 4 or terminal 1. Adjust the setting of the two resistors to give a zero voltage between terminals 2 and 3 with 1.00 ± 0.05 amperes bridge current.

b. Adjusting the output voltage range. With the power supply operating at local sense, set the voltage adjust variable resistor (R6) for minimum output

voltage. Set the adjustable resistor (R5) in series with the voltage adjust resistor (R6) (in the supply from the positive sense terminal) to give an output voltage of 25 to 25.5 volts. Turn the voltage adjust variable resistor (R6) to maximum and check that the output voltage is not more than 37 volts. Readjust the series adjustable resistor (R5) as necessary.

c. Adjusting the load regulation resistor. With the power supply operating at local sense, 28 volts output, measure the output voltage at no load and with full load connected. Check that the variation in line voltage is minimal. Adjust the length of the resistor wire (R10) in series with control winding 43-44 to give an output voltage with full load that is slightly higher than the output voltage at no load. A reduction in length of resistance wire will increase the voltage at full load.

d. Adjusting the cable drop compensation resistor (R4). This is in series with a control winding (47-48) and is connected from the positive output terminal to the local-remote sense switch. With the power supply operating at 28 volts, remote sense and long output cables, measure the output voltage at the load at no-load and at full load. Adjust the compensating resis-

tor to give the same load voltage at full load and at no-load. This adjustment is only capable of compensating for approximately two volts cable drop.

e. Adjusting for line voltage change. Compensator unit assembly (S104276-1) is added to compensate for line voltage changes. With the power supply operating at 28 volts measure the change in output voltage with a change of input voltage from 10% below to 10% above nominal voltage. Adjust the resistor which terminates at terminal 5 of compensator unit and terminal 4 of the Zener diode bridge to give the same output voltage at high input and low input voltage. A decrease in resistance raises the output voltage at low input relative to the output voltage at high input. Set the output voltage of the power supply to minimal and repeat the process, adjusting the resistor connected to terminal 4 of the compensator unit. Recheck the adjustment at high output voltage.

f. Adjusting the ripple voltage. A set of variable resistors (R12-R17) are connected to the saturable reactor power windings at the power diode connection. Adjustment of these resistors affects the balance between the individual saturable reactor windings and consequently affects the ripple voltage. At least one of these resistors should be set at or near

its maximum resistance. If the ripple voltage is excessive check capacitors, power diodes and 3 phase power to power supply. If these are correct, check the electronic voltmeter ME-30A/U across the output terminals and operate the power supply at full load. Increase the resistance of each variable resistor in turn and note the effect of the change on ripple voltage. If the ripple voltage increases, reset to the original setting. If an increase in resistance of any of the resistors reduces the ripple voltage, increase the resistance until a minimum ripple voltage is reached or until the resistor is set to maximum. After checking all resistors, return to the first resistor and repeat the adjustment. If increase of resistance does not improve the ripple, check each resistor in turn for the effect of a decrease in resistance keeping one at its maximum resistance. Resetting each resistor of the set two times will normally approach an optimum setting.

NOTE

The setting of these resistors will not compensate for a badly unbalanced supply voltage.

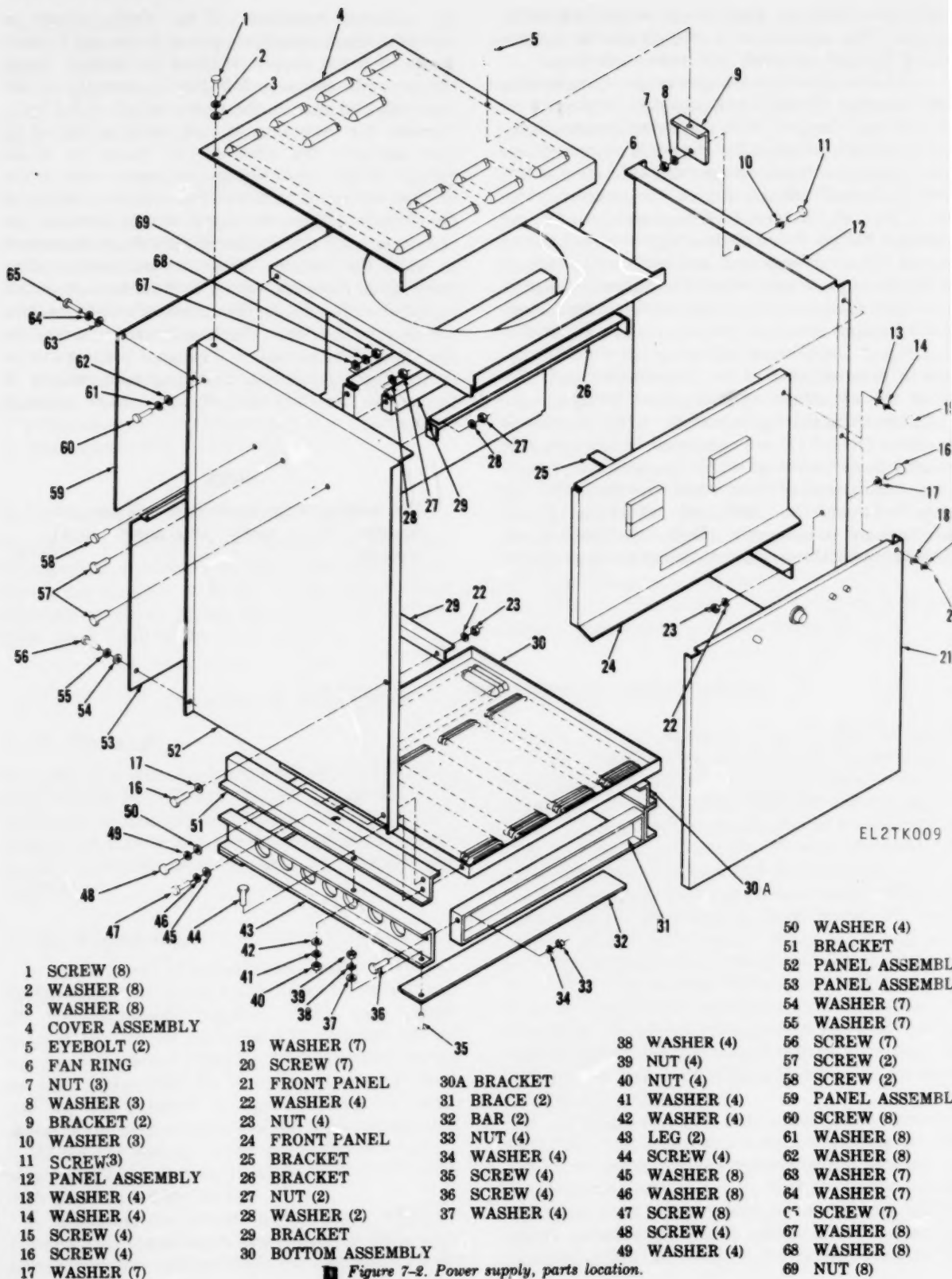
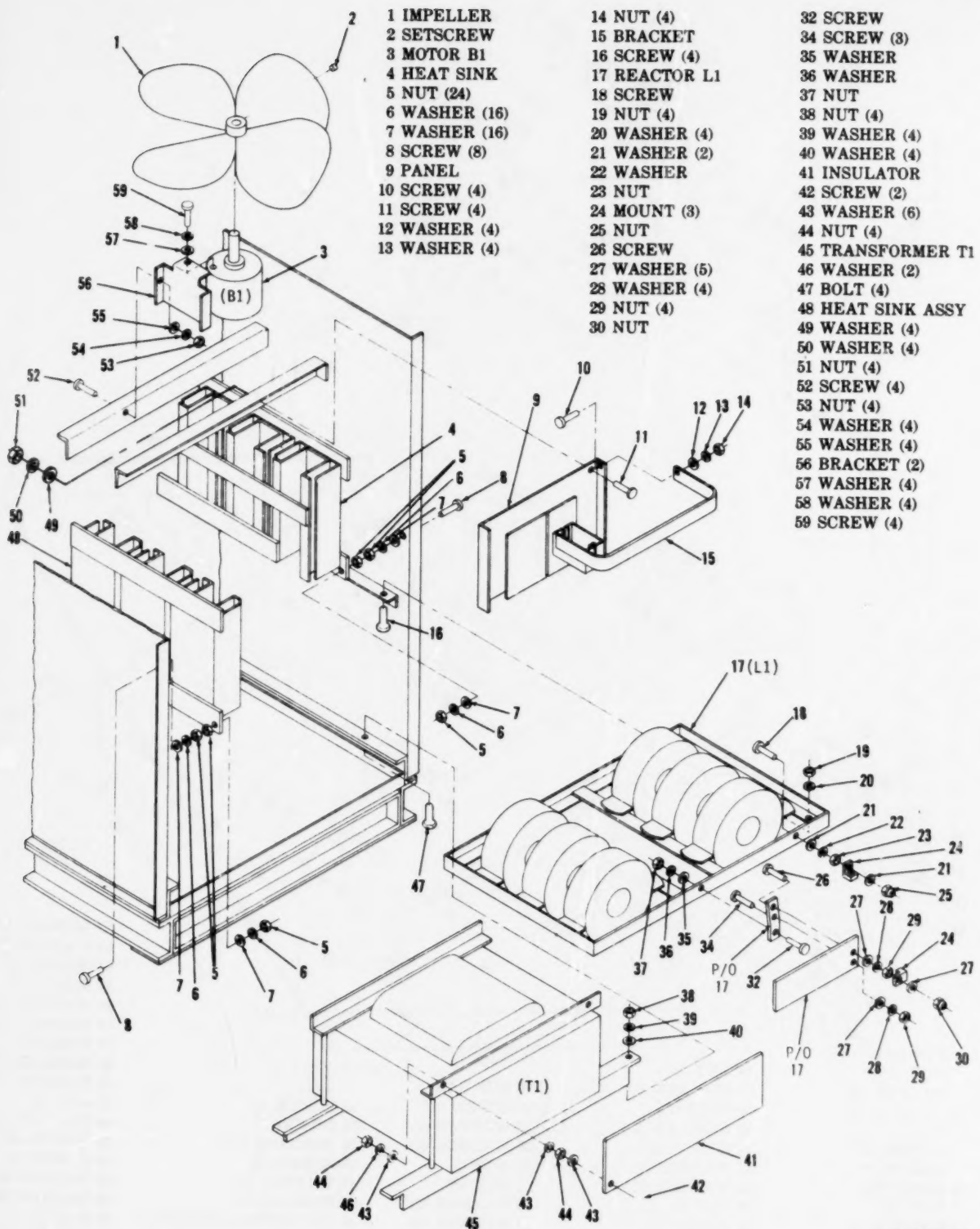


Figure 7-2. Power supply, parts location.



EL2TK010

Figure 7-3. Chassis, parts location

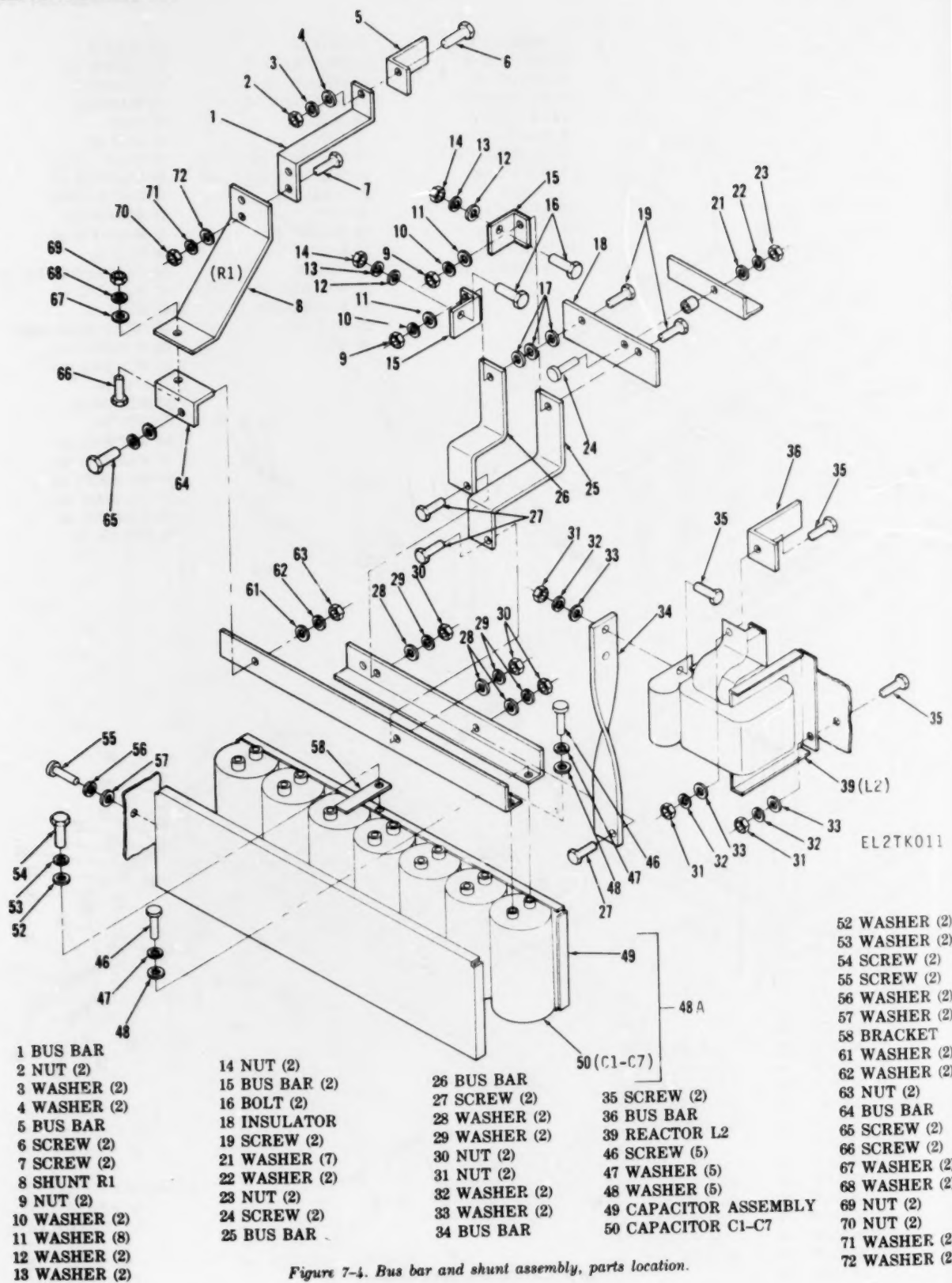
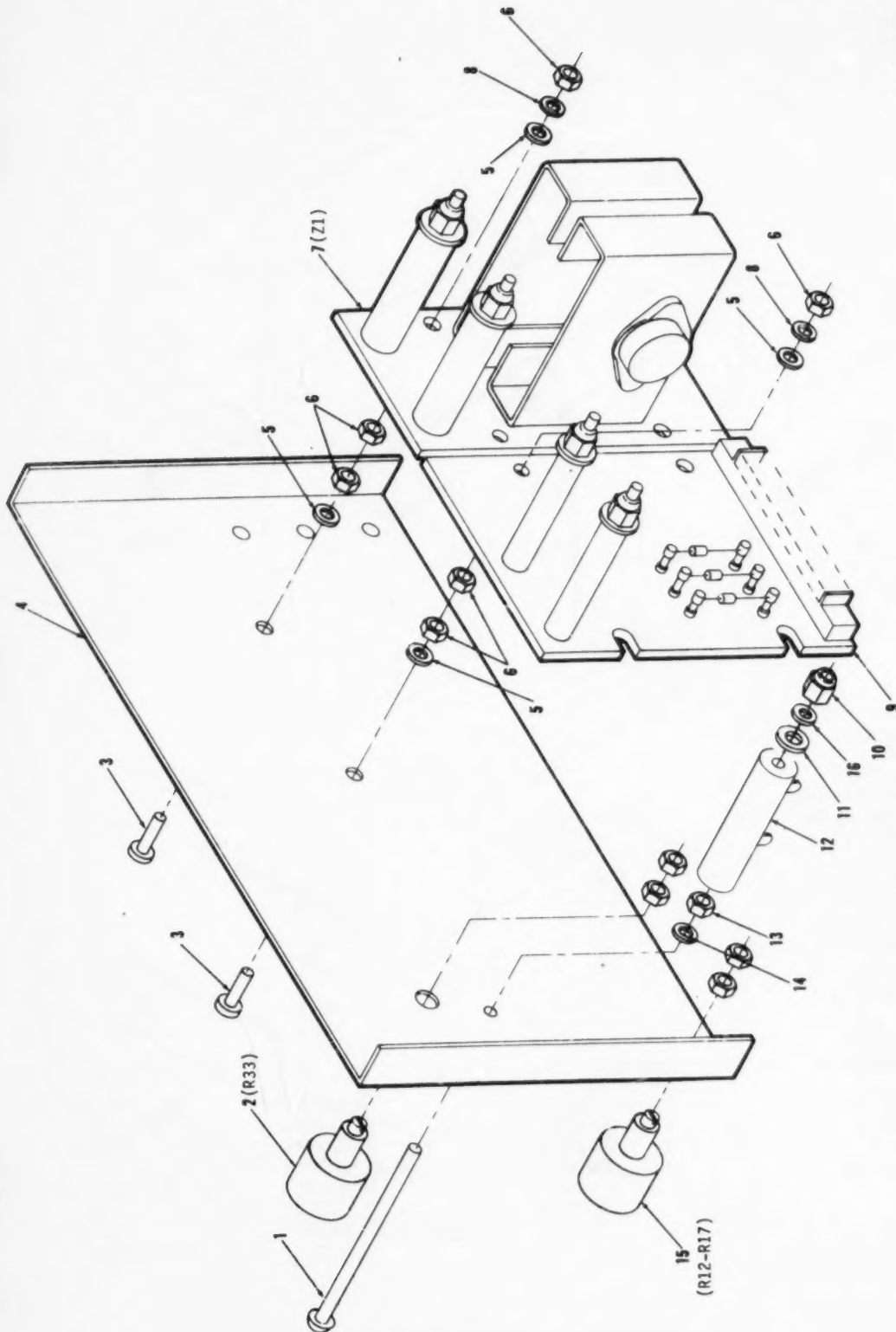


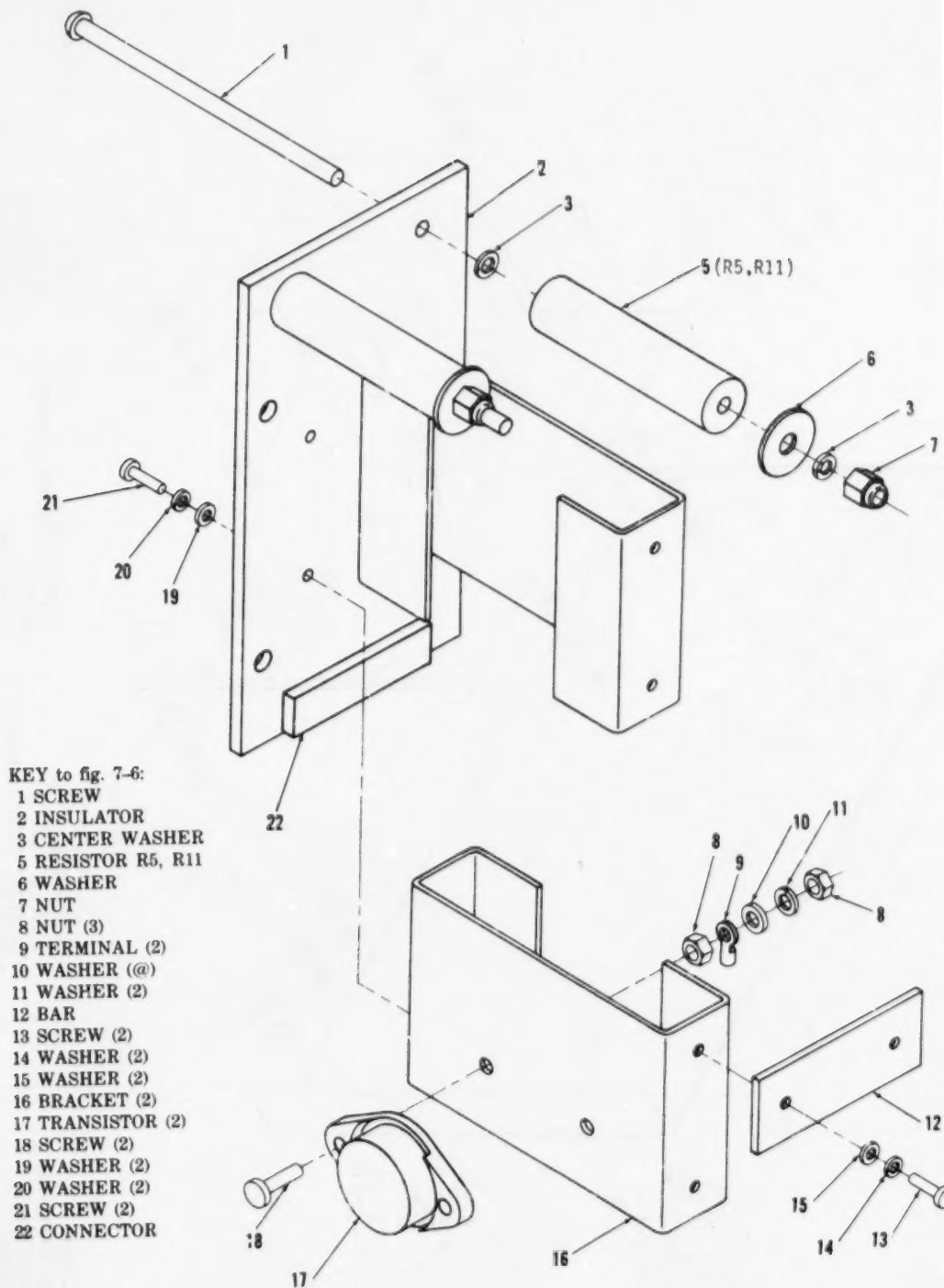
Figure 7-4. Bus bar and shunt assembly, parts location.



EL2TK012

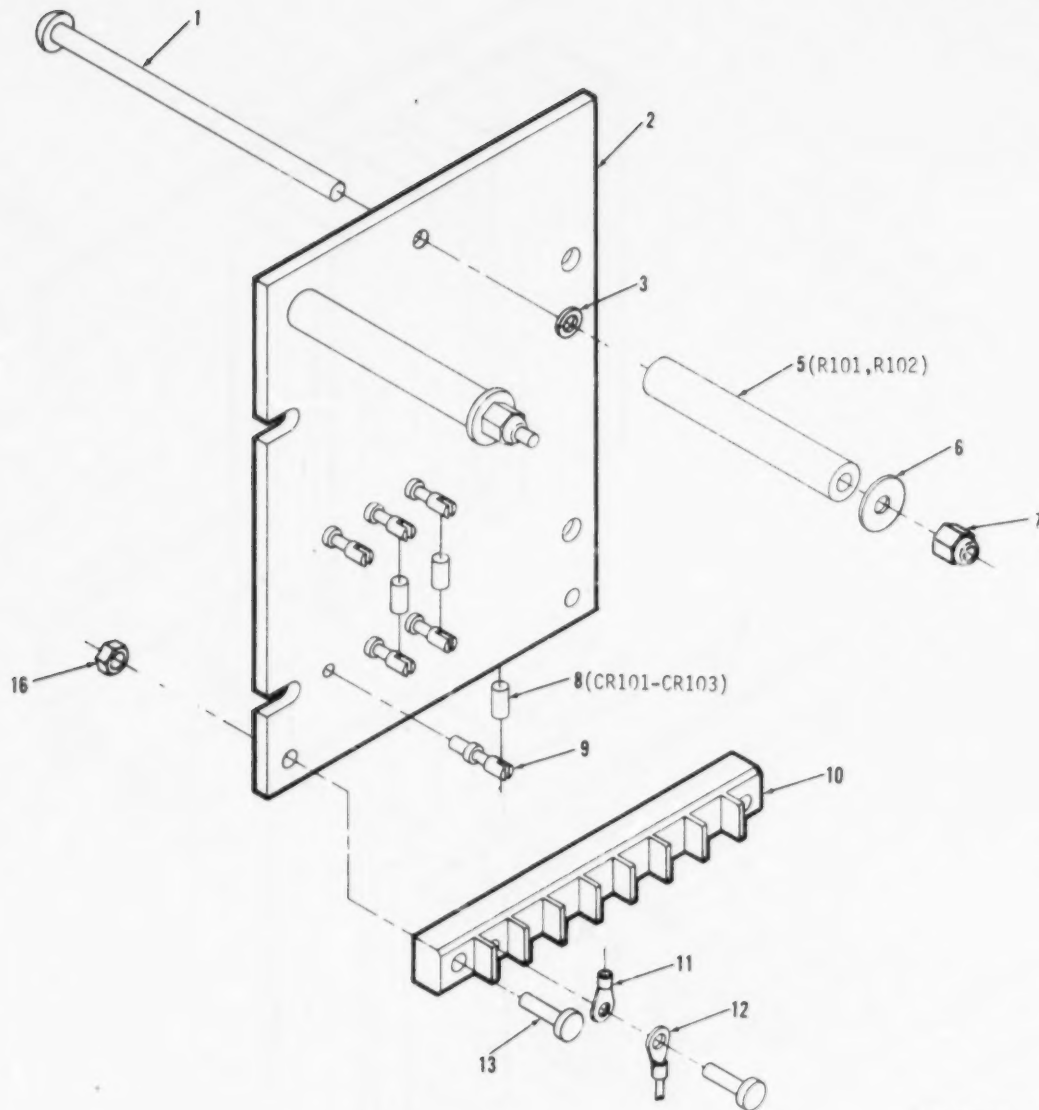
- | | | | |
|----------------|----------------------------|------------------------|---------------------|
| 1 SCREW | 5 WASHER (8) | 9 COMPENSATOR ASSEMBLY | 13 NUT |
| 2 RESISTOR R33 | 6 NUT (12) | 10 NUT | 14 WASHER |
| 3 SCREW (4) | 7 CONTROL UNIT ASSEMBLY Z1 | 11 WASHER | 15 RESISTOR R12-R17 |
| 4 PANEL | 8 WASHER (4) | 12 RESISTOR (2) | 16 CENTER WASHER |

Figure 7-5. Control panel mounting, parts location.



EL2TK013

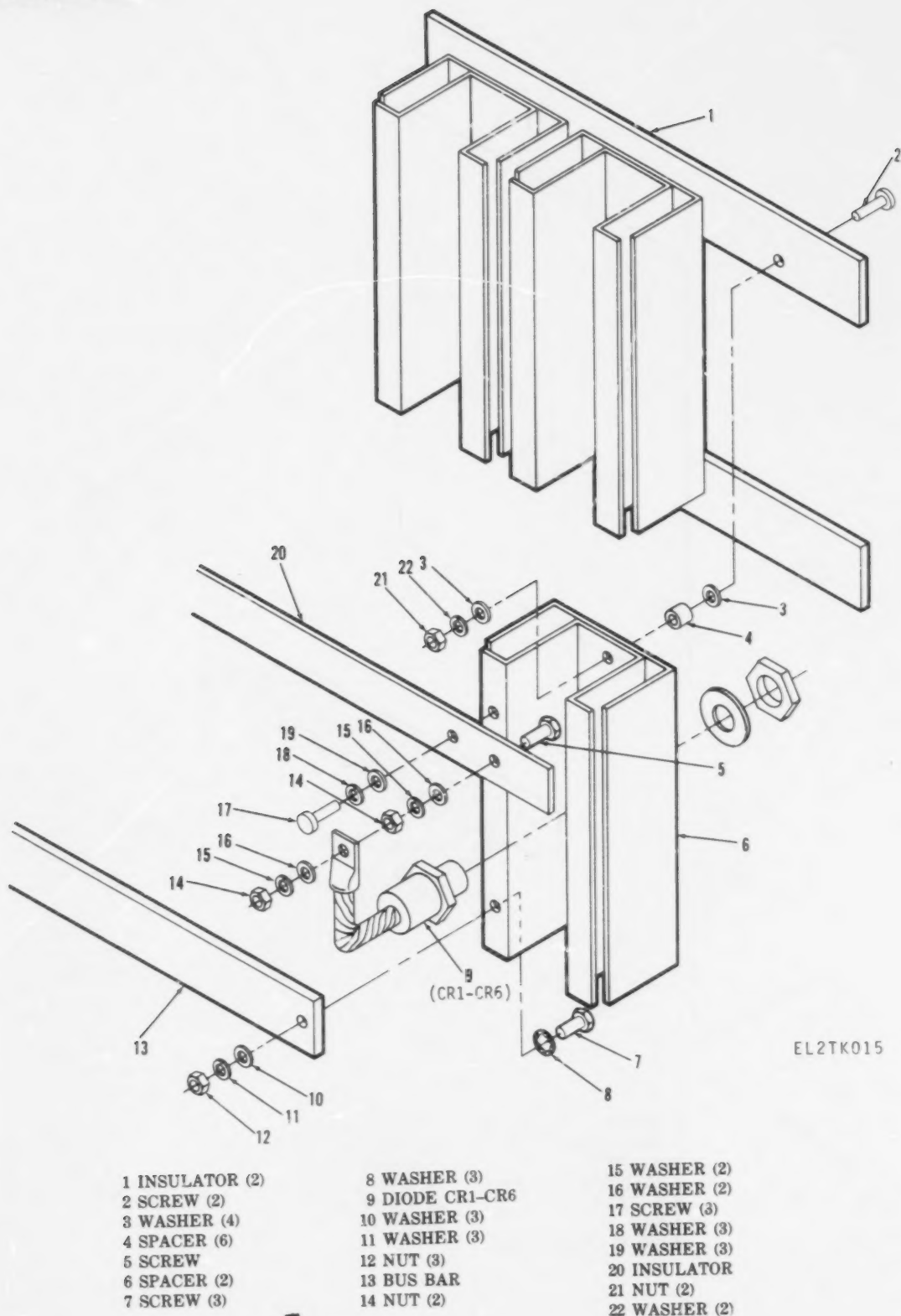
Figure 7-6. Control unit assembly parts location.



EL2TK014

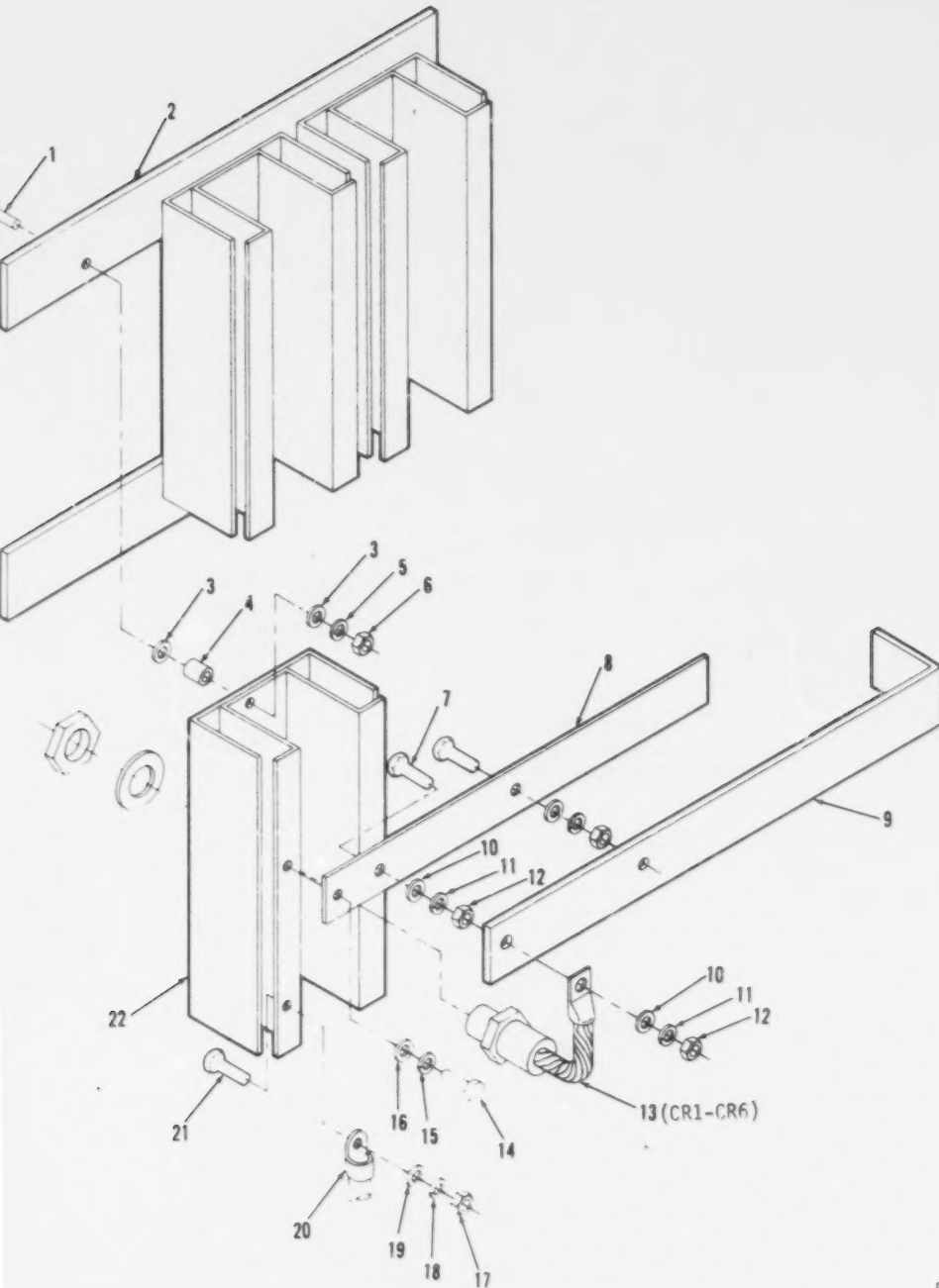
- | | |
|-----------------------|-----------------|
| 1 SCREW | 9 TERMINAL (6) |
| 2 INSULATOR | 10 TERMINAL |
| 3 WASHER | 11 TERMINAL (3) |
| 5 RESISTOR R101, R102 | 12 TERMINAL (7) |
| 6 WASHER | 13 SCREW (2) |
| 7 NUT | 15 NUT (2) |
| 8 DIODE CR103-CR105 | |

Figure 7-7. Compensator unit, parts location.



EL2TK015

Figure 7-8. Heat sink, right side, parts location.



EL2TK016

- | | | |
|-----------------|------------------|------------------|
| 1 SCREW (6) | 9 BUS BAR | 15 WASHER (3) |
| 2 INSULATOR (2) | 10 WASHER (6) | 16 WASHER (3) |
| 3 WASHER (4) | 11 WASHER (6) | 17 NUT |
| 4 SPACER (6) | 12 NUT (6) | 18 WASHER |
| 5 WASHER (2) | 13 DIODE CR1-CR6 | 19 WASHER |
| 6 NUT (2) | 14 SCREW (3) | 20 TERMINAL (3) |
| 7 SCREW (3) | | 21 SCREW |
| 8 INSULATOR | | 22 HEAT SINK (3) |

Figure 7-9. Heat sink, left side, parts location.

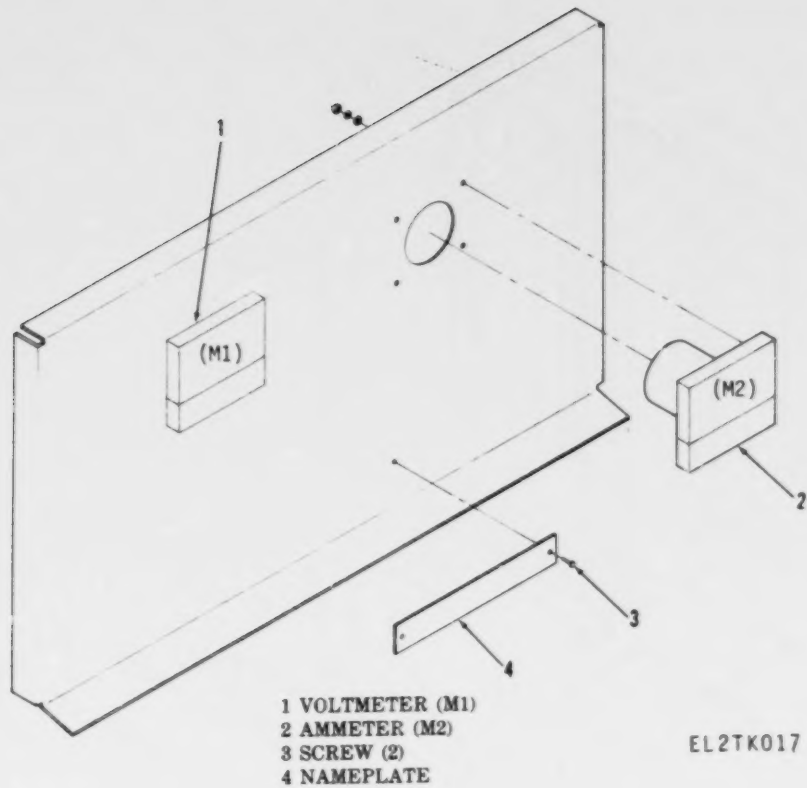


Figure 7-10. Front panel instruments, parts location.

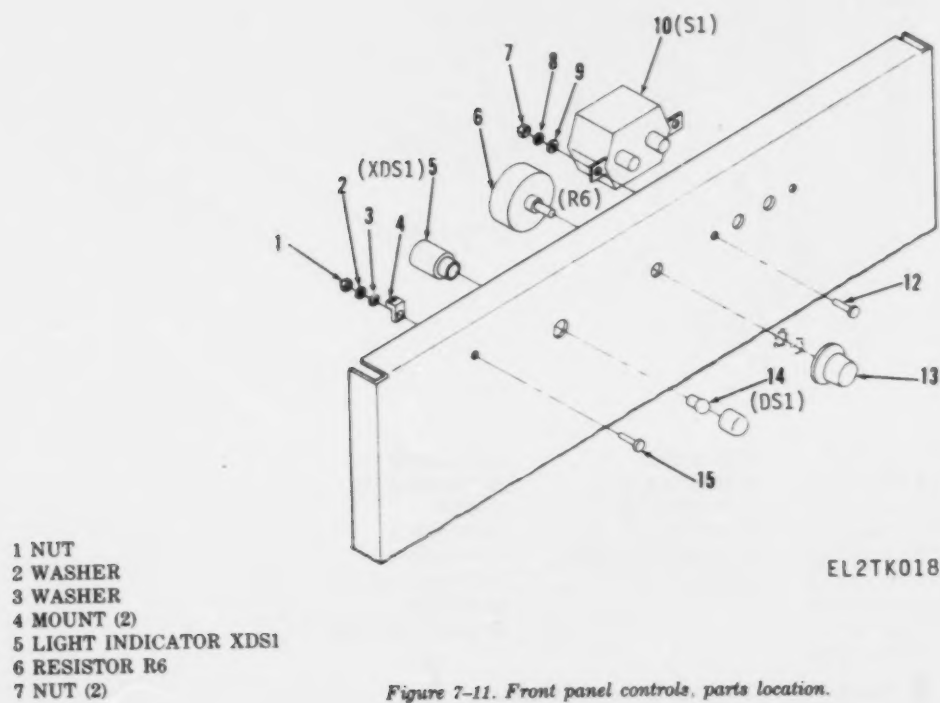
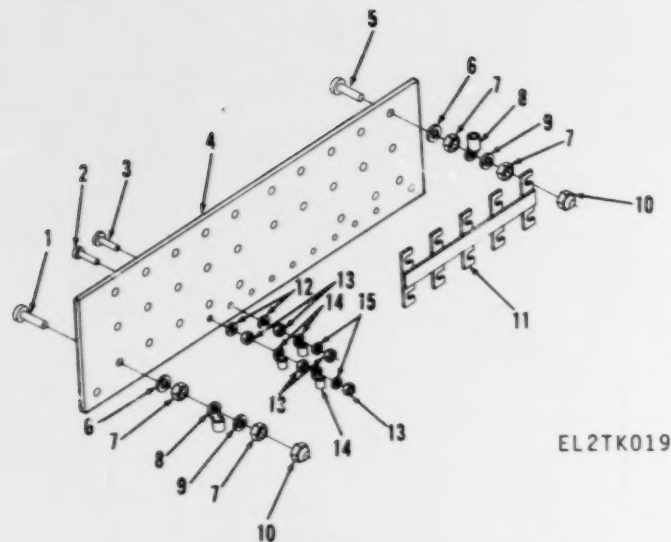


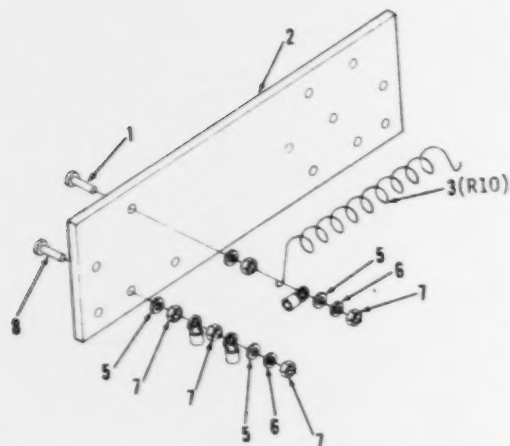
Figure 7-11. Front panel controls, parts location.



EL2TK019

- | | | |
|--------------|-----------------|------------------|
| 1 SCREW (18) | 6 WASHER (26) | 11 LINK ASSEMBLY |
| 2 SCREW (4) | 7 NUT (44) | 12 WASHER (9) |
| 3 SCREW (5) | 8 TERMINAL (21) | 13 NUT (22) |
| 4 INSULATOR | 9 WASHER (26) | 14 TERMINAL (30) |
| 5 SCREW (10) | 10 NUT (26) | 15 WASHER (9) |

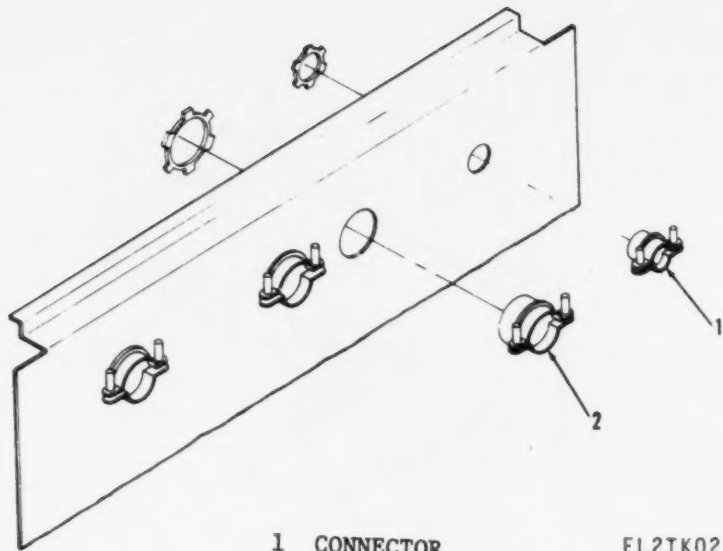
Figure 7-12. Insulator assembly, parts location.



EL2TK020

- | |
|----------------|
| 1 SCREW (2) |
| 2 INSULATOR |
| 3 RESISTOR R10 |
| 5 WASHER (18) |
| 6 WASHER (9) |
| 7 NUT (25) |
| 8 SCREW (7) |

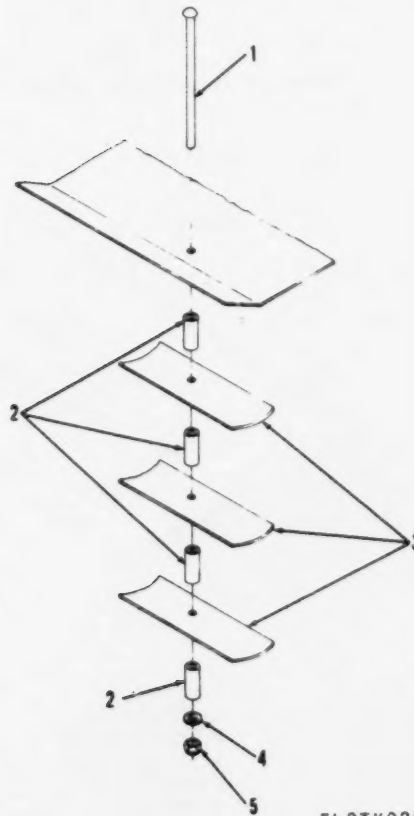
Figure 7-13. Resistor board, parts location.



- 1 CONNECTOR
- 2 CONNECTOR

EL2TK021

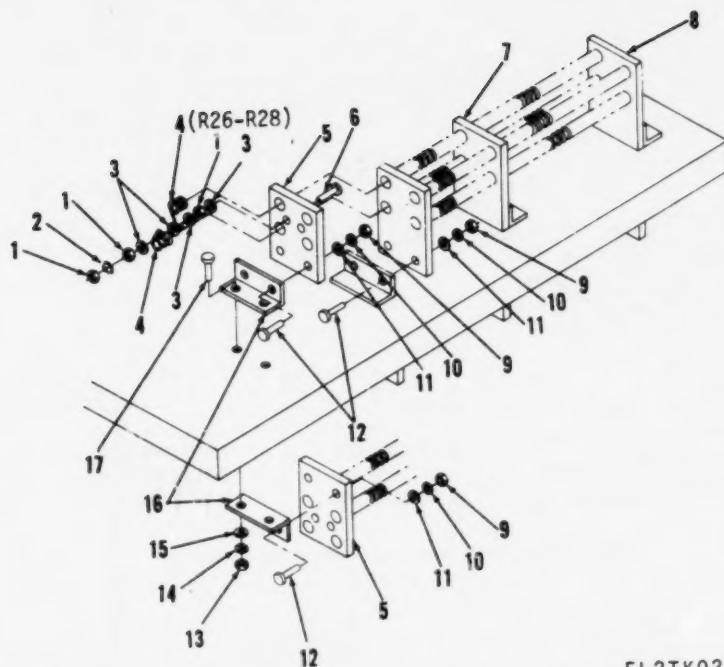
Figure 7-14. Panel assembly, bottom parts location.



- 1 SCREW
- 2 SPACER
- 3 LOUVER
- 4 WASHER
- 5 NUT

EL2TK022

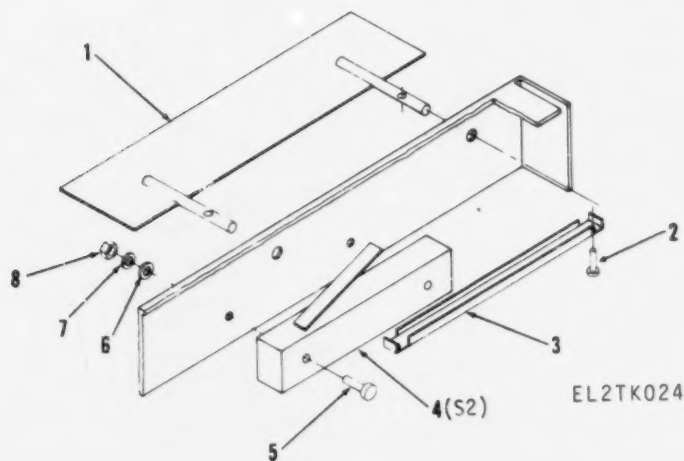
Figure 7-15. Cover louvers, parts location.



EL2TK023

- | | | |
|--------------------|-----------------|----------------|
| 1 NUT (6) | 7 INSULATOR (4) | 13 NUT (2) |
| 2 WASHER (2) | 8 INSULATOR (2) | 14 WASHER (2) |
| 3 WASHER (8) | 9 NUT (2) | 15 WASHER (2) |
| 4 RESISTOR R26-R28 | 10 WASHER (2) | 16 BRACKET (8) |
| 5 INSULATOR (2) | 11 WASHER (2) | 17 SCREW (2) |
| 6 SCREW (2) | 12 SCREW (2) | |

Figure 7-16. Bleeder resistor assembly, parts location.



EL2TK024

- | | |
|-----------------|--------------|
| 1 VANE ASSEMBLY | 5 SCREW (2) |
| 2 SCREW (2) | 6 WASHER (2) |
| 3 CROSS ARM | 7 WASHER (2) |
| 4 SWITCH S2 | 8 NUT (2) |

Figure 7-17. Windswitch assembly, parts location.

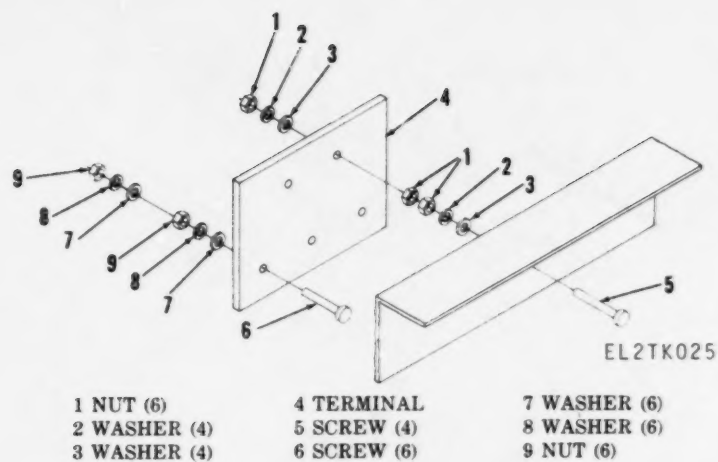


Figure 7-18. Motor terminal board, parts location.

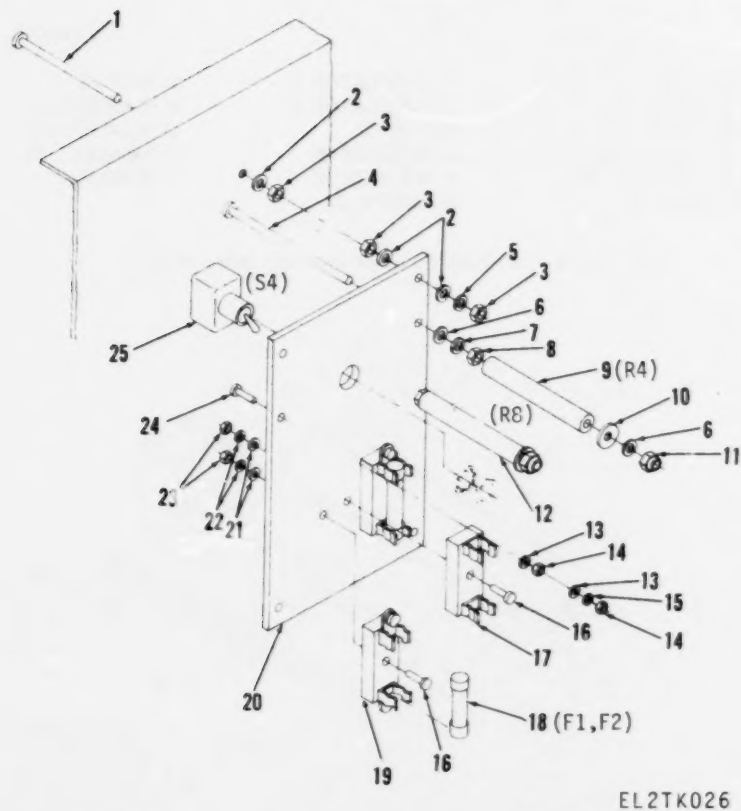
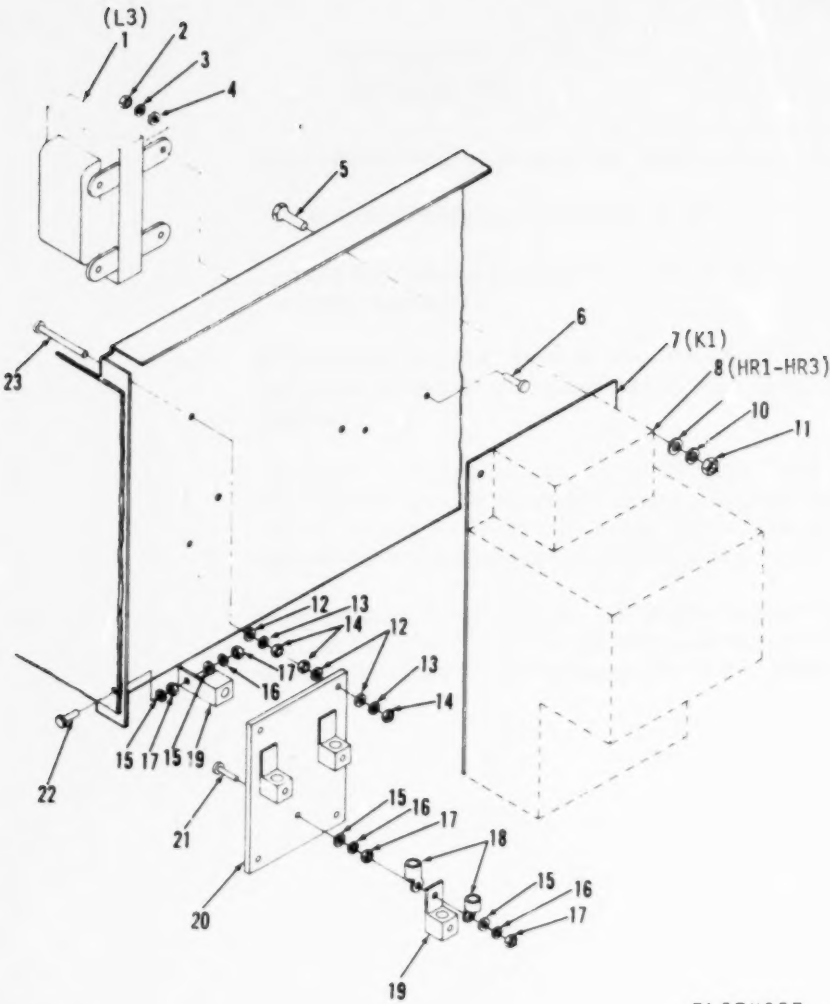


Figure 7-19. Sense assembly terminal board, parts location.



EL2TK027

- | | |
|------------------|-----------------|
| 1 REACTOR L3 | 13 WASHER (2) |
| 2 NUT (2) | 14 NUT (12) |
| 3 WASHER (2) | 15 WASHER (2) |
| 4 WASHER (2) | 16 WASHER (2) |
| 5 SCREW (4) | 17 NUT (2) |
| 6 SCREW (2) | 18 TERMINAL (6) |
| 7 STARTER K1 | 19 TERMINAL (4) |
| 8 HEATER HR1-HR3 | 20 INSULATOR |
| 9 WASHER (4) | 21 SCREW |
| 10 WASHER (4) | 22 SCREW |
| 11 NUT (4) | 23 SCREW (4) |
| 12 WASHER (12) | |

Figure 7-20. Reactor assembly parts location.

**APPENDIX A
REFERENCES**

DA Pam 310-1	Consolidated Index of Army Publications and Blank Forms.
DA Pam 738-750	The Army Maintenance Management System (TAMMS).
SB 11-573	Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment.
TB 43-0118	Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelters.
TM 11-4940-246-14	Operator's, Organizational, Direct Support and General Support Maintenance Manual; Electronic Shops, Semitrailer Mounted AN/ASM-189A (NSN 4940-00-234-6114) and AN/ASM-190A (NSN 4940-00-177-6835) (Reprinted with Basic Including C1).
TM 11-6125-257-24P	Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Power Supply, PP-7462/U (NSN 4940-01-064-7342).

APPENDIX B

COMPONENTS OF END ITEM LIST (COEIL)

The only component of the PP-7462/U is the power supply itself.

APPENDIX C
ADDITIONAL AUTHORIZATION LIST (AAL)

NOT APPLICABLE

APPENDIX D

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

D-1. General.

This appendix provides a summary of the maintenance operations for PP-7462/U. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

D-2. Maintenance Function.

Maintenance functions will be limited and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment or system.

h. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc.) considered in classifying Army equipments/components.

D-3. Column Entries.

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. Column 2, Component/Assembly. Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Functions. Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for purpose of having the group numbers in the MAC and RPSTL coincide.

d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a "worktime" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate "worktime" figures will be shown for each category. The number of task-hours specified by the "work time" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of column 4 are as follows:

- C - Operator/Crew
- O - Organizational
- F - Direct Support
- H - General Support
- D - Depot

e. Column 5, Tools and Equipment. Column 5 specifies by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

f. Column 6, Remarks. Column 6 contains an alphabetic code which leads to the remark in section

IV, Remarks, which is pertinent to the item opposite the particular code.

D-4. Tool and Test Equipment Requirements (Sect. III).

a. Tool or Test Equipment Reference Code. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. Maintenance Category. The codes in this column indicate the maintenance category allocated the tool or test equipment.

c. Nomenclature. This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

d. National/NATO Stock Number. This column lists the National/NATO stock number of the specific tool or test equipment.

e. Tool Number. This column lists the manufacturer's part number of the tool followed by the Federal Supply Code for manufacturers (5-digit) in parentheses.

D-5. Remarks (Sec. IV).

a. Reference Code. This code refers to the appropriate item in section II, column 6.

b. Remarks. This column provides the required explanatory information necessary to clarify items appearing in section II.

**SECTION II MAINTENANCE ALLOCATION CHART
FOR**

TM 11-6125-257-14

Power Supply PP-7462/U

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
.00	Power Supply PP-7462/U	Inspect		0.1					A
		Service		0.1					A
		Test		0.1					B
		Service		0.2				4	
		Test		0.1				1	C
		Replace		0.2				1-2	D
		Test				0.5		1,3,5,6	
		Adjust				0.5		1,3,5,6	E
		Repair				1.0		5,6	
		Overhaul					10	1-6	

**SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS
FOR**

TM 11-6125-257-16

Power Supply PP-7462/U

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	O	Multimeter, AN/URM-105C	6625-00-581-2036	
2	O	Multimeter, TS-352	6625-00-242-5023	
3	H	Tool Kit, Electronic Equipment, TK-100/G	3180-00-605-0079	
4	O	Tool Kit, Electronic Equipment, TK-101/G	3180-00-064-5178	
5	H	Tool Kit, Electronic Equipment, TK-105/G	3180-00-610-8177	
6	H	Voltmeter, Electronic ME-307/U	6625-00-420-9354	

REFERENCE CODE	REMARKS
A	Exterior
B	Operational
C	Input - Output Voltage
D	Lamps, Fuses, Power/Conn
E	Voltage Ranges

APPENDIX E
EXPENDABLE SUPPLIES AND MATERIALS LIST

NOT APPLICABLE

By Order of the Secretary of the Army:

Official:

J. C. PENNINGTON
Major General, United States Army
The Adjutant General

E.C. MEYER
General, United States Army
Chief of Staff

DISTRIBUTION:

Active Army:

HISA (Ft Monmouth) (21)
USAINSCOM (2)
COE (1)
TSG (1)
USAAARENB (1)
DARCOM (1)
TRADOC (2)
OS MAJ COMD (4)
TECOM (2)
USACC (4)
MDW (1)
Armies (2)
Corps (2)
Svc Colleges (1)
USASIGS (5)
USAADS (2)
USAFAS (2)
USAARMS (2)
USAIS (2)
USAES (2)
USAICS (3)
MAAG (1)
USARMIS (1)
USAERDAA (1)
USAERDAW (1)
Ft Carson (5)
Ft Gillem (10)
Ft Gordon (10)
Ft Richardson (CERCOM Ofc) (2)
USA Dep (1)
Sig Sec USA Dep (1)
Units Org Under Fol TOE:
29-207 (2)
29-610(2)

ARNG: None

USAR: None

For explanation of abbreviations used, see AR 310-50.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS



SOMETHING WRONG WITH THIS MANUAL?

THEN... JOT DOWN THE
DOPE ABOUT IT ON THIS
FORM, TEAR IT OUT, FOLD
IT AND DROP IT IN THE
MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)

Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703

DATE 10 July 1975

PUBLICATION NUMBER

TM 11-5840-340-12

DATE

23 Jan 74

TITLE

Radar Set AN/SPS-76

BE EXACT... PIN-POINT WHERE IT IS

IN THIS SPACE TELL WHAT IS WRONG
AND WHAT SHOULD BE DONE ABOUT IT:

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
----------	------------	------------	-----------

2-25	2-28		
------	------	--	--

Recommend that the installation antenna alignment procedure be changed through to specify a 2° IFF antenna lag rather than 1°.

REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 10 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.

3-10	3-3		
------	-----	--	--

		3-1	
--	--	-----	--

Item 5, Function column. Change "2 db" to "3db."

REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.

5-6	5-8		
-----	-----	--	--

Add new step f.1 to read, "Replace cover plate removed in step e.1, above."

REASON: To replace the cover plate.

			FO3
--	--	--	-----

Zone C 3. On J1-2, change "+24 VDC to "+5 VDC."

REASON: This is the output line of the 5 VDC power supply. + 24 VDC is the input voltage.

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SSG I. M. DeSpirito 999-1776

SIGN HERE:

SSG I. M. DeSpirito

DA FORM 2028-2
1 AUG 74

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR MANUAL "FIND" MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

TEAR ALONG DOTTED LINE



SOMETHING WRONG WITH THIS MANUAL?

THEN...JOT DOWN THE
DOPE ABOUT IT ON THIS
FORM, TEAR IT OUT, FOLD
IT AND DROP IT IN THE
MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)

DATE

PUBLICATION NUMBER

DATE

TITLE

TM 11-6125-257-14

29 NOV 79

Power Supply PP-7462/U

BE EXACT...PIN-POINT WHERE IT IS

IN THIS SPACE TELL WHAT IS WRONG
AND WHAT SHOULD BE DONE ABOUT IT:

PAGE
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PARA-
GRAPH

FIGURE
NO.

TABLE
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Power Supply PP-7462/U

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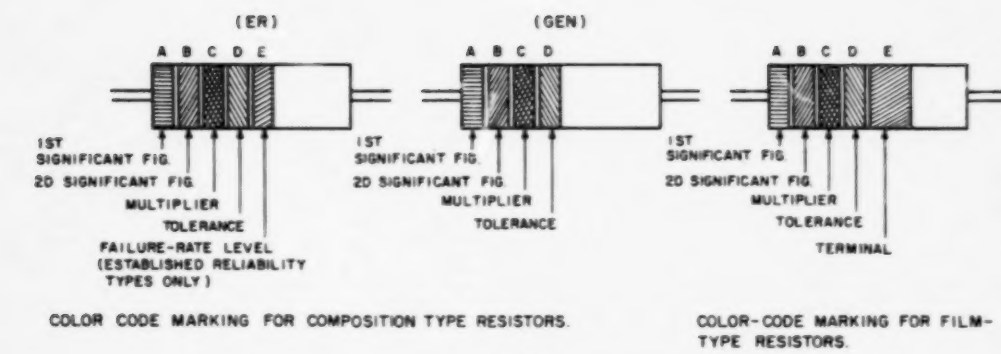
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REVERSE OF DA FORM 2028-2

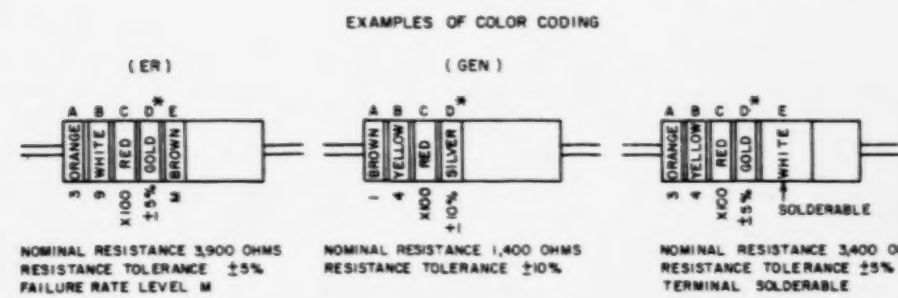
Charts Transposed to
End of Volume.



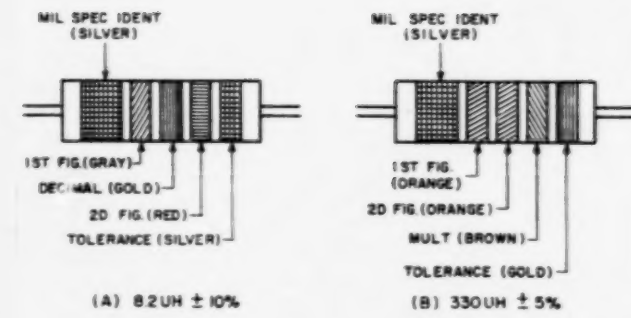
BAND A			BAND B			BAND C			BAND D			BAND E		
COLOR	FIRST SIGNIFICANT FIGURE		COLOR	SECOND SIGNIFICANT FIGURE		COLOR	MULTIPLIER		COLOR	RESISTANCE TOLERANCE (PERCENT)		COLOR	FAILURE RATE LEVEL	T
BLACK	0		BLACK	0		BLACK	1					BROWN	M=0.1	
BROWN	1		BROWN	1		BROWN	10					RED	P=0.1	
RED	2		RED	2		RED	100					ORANGE	R=0.01	
ORANGE	3		ORANGE	3		ORANGE	1,000					YELLOW	S=0.001	
YELLOW	4		YELLOW	4		YELLOW	10,000		SILVER	±10 (COMP TYPE ONLY)		WHITE		50 EP
GREEN	5		GREEN	5		GREEN	100,000		GOLD	±5				
BLUE	6		BLUE	6		BLUE	1,000,000		RED.	±2 (NOT APPLICABLE TO ESTABLISHED RELIABILITY).				
PURPLE (VIOLET)	7		PURPLE (VIOLET)	7										
GRAY	8		GRAY	8		SILVER	0.01							
WHITE	9		WHITE	9		GOLD	0.1							

BAND A — THE FIRST SIGNIFICANT FIGURE OF THE RESISTANCE VALUE (BANDS A THRU D SHALL BE OF EQUAL WIDTH).
 BAND B — THE SECOND SIGNIFICANT FIGURE OF THE RESISTANCE VALUE.
 BAND C — THE MULTIPLIER (THE MULTIPLIER IS THE FACTOR BY WHICH THE TWO SIGNIFICANT FIGURES ARE MULTIPLIED TO YIELD THE NOMINAL RESISTANCE VALUE.)
 BAND D — THE RESISTANCE TOLERANCE.
 BAND E — WHEN USED ON COMPOSITION RESISTORS, BAND E INDICATES ESTABLISHED RELIABILITY FAILURE-RATE LEVEL PERCENT FAILURE PER 1,000 HOURS ON FILM RESISTORS, THIS BAND SHALL BE APPROXIMATELY 1-1/2 TIMES THE WIDTH OF OTHER BANDS, AND INDICATES TYPE OF TERMINAL.
 RESISTANCES IDENTIFIED BY NUMBERS AND LETTERS (THESE ARE NOT COLOR CODED).
 SOME RESISTORS ARE IDENTIFIED BY THREE OR FOUR DIGIT ALPHA NUMERIC DESIGNATORS. THE LETTER R IS USED IN PLACE OF A DECIMAL POINT WHEN FRACTIONAL VALUES OF AN OHM ARE EXPRESSED. FOR EXAMPLE:
 2R7 = 2.7 OHMS 10R0 = 10.0 OHMS

FOR WIRE-WOUND-TYPE RESISTORS COLOR CODING IS NOT USED, IDENTIFICATION MARKING IS SPECIFIED IN EACH OF THE APPLICABLE SPECIFICATIONS.



COMPOSITION-TYPE RESISTORS
 * IF BAND D IS OMITTED, THE RESISTOR TOLERANCE IS $\pm 20\%$ AND THE RESISTOR IS NOT MIL-STD.
 A. COLOR CODE MARKING FOR MILITARY STANDARD RESISTORS.



COLOR CODING FOR TUBULAR ENCAPSULATED R.F. CHOKES. AT A, AN EXAMPLE OF THE CODING FOR AN 8.2UH CHOKES IS GIVEN. AT B, THE COLOR BANDS FOR A 330UH INDUCTOR ARE ILLUSTRATED.

TABLE 2
COLOR CODING FOR TUBULAR ENCAPSULATED R.F. CHOKES

COLOR	SIGNIFICANT FIGURE	MULTIPLIER	INDUCTANCE TOLERANCE (PERCENT)
BLACK	0	1	
BROWN	1	10	
RED	2	100	
ORANGE	3	1,000	
YELLOW	4		
GREEN	5		
BLUE	6		
VIOLET	7		
GRAY	8		
WHITE	9		
NONE		20	
SILVER		10	
GOLD		5	

MULTIPLIER IS THE FACTOR BY WHICH THE TWO COLOR FIGURES ARE MULTIPLIED TO OBTAIN THE INDUCTANCE VALUE OF THE CHOKES COIL.

B. COLOR CODE MARKING FOR MILITARY STANDARD INDUCTORS.

CAPACITORS, FIXED, VARIOUS-DIELECTRICS, STYLES CM, CN, CY, AND CB

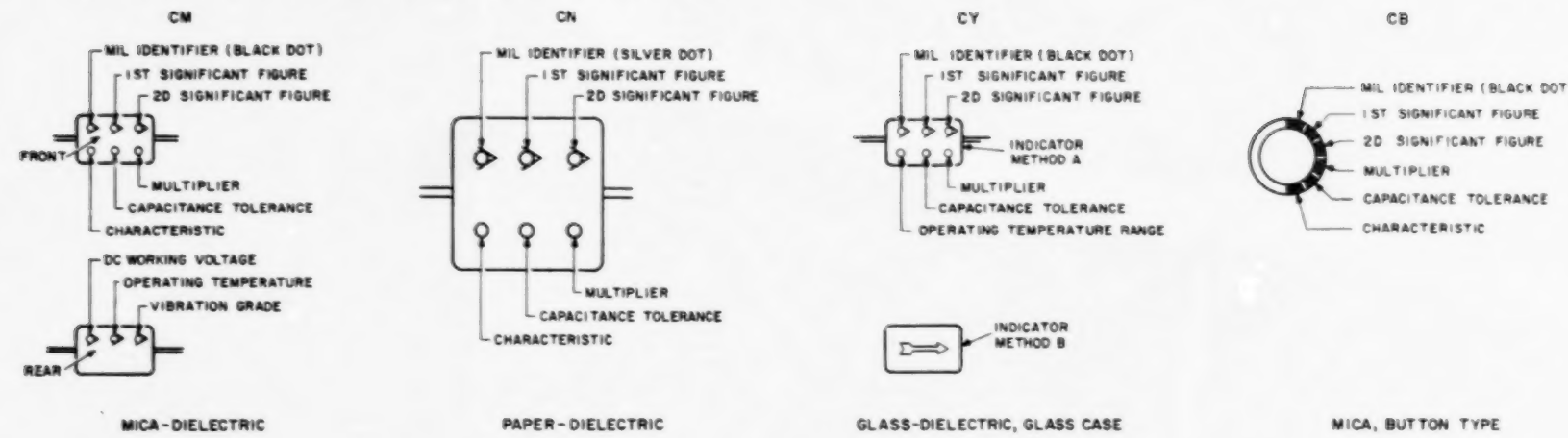


TABLE 3 — FOR USE WITH STYLES CM, CN, CY AND CB.

COLOR	MIL ID	1ST SIG FIG	2D SIG FIG	MULTIPLIER	CAPACITANCE TOLERANCE	CHARACTERISTIC	DC VOLTAGE	OPERATING TEMP RANGE	VIBRATION GRADE
BLACK	CM, CN, CY, CB	0	0	1					
BROWN		1	1	10	20%				
RED		2	2	100	2%				
ORANGE		3	3	1,000	30%				
YELLOW		4	4	10,000					
GREEN		5	5						
BLUE		6	6						
PURPLE (VIOLET)		7	7						
GRAY		8	8						
WHITE		9	9						
GOLD				0.1	2%				
SILVER				0.01	20%				

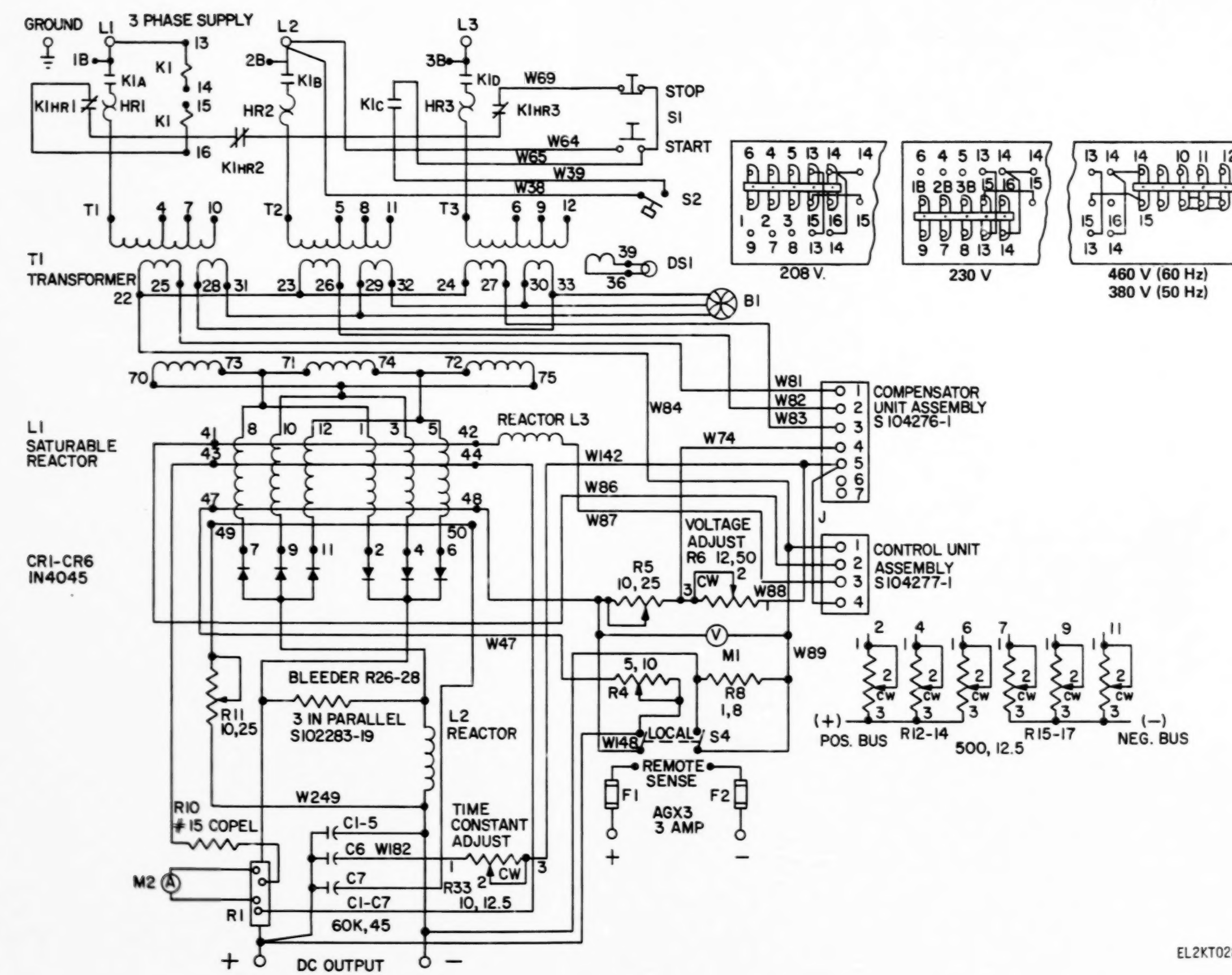
TABLE 4 — TEMPERATURE COMPENSATING, STYLE CC.

COLOR	TEMPERATURE COEFFICIENT	1ST SIG FIG	2D SIG FIG	MULTIPLIER	CAPACITANCE TOLERANCE	MIL ID
BLACK	0	0	0	1		
BROWN	-30	1	1	10	2%	
RED	-80	2	2	100	2%	
ORANGE	-150	3	3	1,000		
YELLOW	-220	4	4			
GREEN	-330	5	5			
BLUE	-470	6	6			
PURPLE (VIOLET)	-750	7	7			
GRAY		8	8	0.01*		
WHITE		9	9	0.1*	20%	
GOLD	+100			0.1	20%	
SILVER				0.01		

- THE MULTIPLIER IS THE NUMBER BY WHICH THE TWO SIGNIFICANT (SIG) FIGURES ARE MULTIPLIED TO OBTAIN THE CAPACITANCE IN UUF.
- LETTERS INDICATE THE CHARACTERISTICS DESIGNATED IN APPLICABLE SPECIFICATIONS MIL-C-8, MIL-C-280, MIL-C-11272B, AND MIL-C-10900C RESPECTIVELY.
- LETTERS INDICATE THE TEMPERATURE RANGE AND VOLTAGE-TEMPERATURE LIMITS DESIGNATED IN MIL-C-11015D.
- TEMPERATURE COEFFICIENT IN PARTS PER MILLION PER DEGREE CENTIGRADE.
- * OPTIONAL CODING WHERE METALLIC PIGMENTS ARE UNDESIRABLE.

C. COLOR CODE MARKING FOR MILITARY STANDARD CAPACITORS

Figure FO-1. Standard resistor, inductor and capacitor color codes.



Change 1 Figure FO-2. Schematic diagram, PP-7462/U.

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